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Precision and Accuracy Assessments for State and Local Air Monitoring Networks, 1983

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A comparison of the precision and accuracy data from the Precision and Accuracy Reporting System and that from the independent performance audit program conducted by the Environmental Monitoring Systems Laboratory is given.

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PRECISION AND ACCURACY ASSESSMENTS
FOR STATE AND LOCAL AIR MONITORING NETWORKS
1983

by

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FOREWORD

Measurement and monitoring research efforts are designed to anticipate potential environmental problems, to support regulatory actions by developing an in-depth understanding of the nature and processes that impact health and the ecology, to provide innovative means of monitoring compliance with regulations, and to evaluate the effectiveness of health and environmental protection efforts through the monitoring of long-term trends. The Environmental Monitoring Systems Laboratory, Research Triangle Park, North Carolina, has the responsibility for assessment of environmental monitoring technology and systems; implementation of agency-wide quality assurance programs for air pollution measurement systems; and supplying technical support to other groups in the Agency including the Office of Air and Radiation, the Office of Toxic Substances, and the Office of Enforcement.

Ambient air quality data collected by states and local agencies are used in planning the nation's air pollution control strategy, in determining if National Air Quality Standards are being achieved, and in determining long-term trends of air quality. Prior to the regulations of May 10, 1979, the procedures used in site selection, controlling equipment, and calculating and validating data varied considerably among agencies. To improve and make more uniform the quality assurance programs of the state and local agencies and to require the assessment and reporting of data quality estimates for precision and accuracy, the May 10, 1979 regulations were issued. Reporting of precision and accuracy data were required beginning for calendar year 1981. Previous reports summarized the results for 1981 and 1982. This report summarizes and evaluates the results for 1983.

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ABSTRACT

Precision and accuracy data obtained from State and local agencies during 1983 are summarized and evaluated. Some comparisons are made with the results previously reported for 1981 and 1982 to determine the indication of any trends. Some trends indicated improvement in the completeness of reporting of precision and accuracy data. The national summaries indicate a slight improvement in the precision and accuracy assessments of the pollutant monitoring data collected. The annual results from each reporting organization are given so that comparisons may be made from 1981 to 1983 and also with other reporting organizations.

A comparison of the precision and accuracy data from the Precision and Accuracy Reporting System and that from the independent performance audit program conducted by the Environmental Monitoring Systems Laboratory is given.

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SECTION 1

INTRODUCTION

The purpose of this document is to report the third year of data from the Precision and Accuracy Reporting System (PARS). Federal regulations promulgated on May 10, 1979, require quality assurance precision and accuracy (P and A)* data to be collected. Collection started January 1, 1981, according to requirements set forth in 40 CFR Part 58 Appendix A.[1] These requirements provide for more uniform Quality Assurance programs and specific precision and accuracy reporting requirements across all State and local air monitoring agencies.

The major portion of this report consists of summarizations and evaluations of the P and A data obtained by the efforts of the States and local agencies. In addition, comparisons have been made of the accuracy data collected for PARS with the results of the National Performance Audit Program (NPAP) which has been an ongoing program conducted by the Environmental Monitoring Systems Laboratory (EMSL) since the early 1970's.

These summarizations and evaluations of precision and accuracy data serve the following purposes:

1. Quantitative estimates of the precision and accuracy of their ambient air monitoring data are available to State and local agencies.
2. A comparison of the data from all the agencies may indicate the need to improve quality assurance systems in specific reporting organizations.
3. An evaluation of the results may indicate a need for improvement in monitoring methodology.
4. The assessments provide users of data from the State and Local Air Monitoring Stations (SLAMS) network a quantitative estimate of the precision and accuracy of the ambient air quality data.

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*When one speaks of precision and accuracy of measurement data,[2] one really means the precision and accuracy of the measurement process from which the measurement data are obtained. Precision is a measure of the "repeatability of the measurement process under specified conditions." Accuracy is a measure of "closeness to the truth."

Ambient air quality data, collected by States and local agencies since 1957, have been stored in the National Aerometric Data Bank (NADB). These data are used in (1) planning the nation's air pollution control strategy, (2) determining if the National Air Quality Standards are being achieved, and (3) determining long-term trends of air quality. Prior to the EPA air monitoring regulations of May 10, 1979, the procedures used in selecting monitoring sites, operating and controlling the equipment, and calculating, validating and reporting the data varied considerably among agencies. Frequently the procedures being used were not well-documented. These conditions made it difficult to intercompare data from different sites and agencies. Furthermore, little information was available on the reliability of the monitoring data.

To help alleviate these problems, EPA's air monitoring regulations imposed uniform criteria on network design, siting, quality assurance, monitoring methods, and data reporting after December 30, 1980. For example, only EPA reference, equivalent, or other EPA-approved air monitoring methods were to be used. Also, calibration standards were to be traceable to the National Bureau of Standards (NBS) or other authoritative standards. Further, the quality assurance systems of the states were required to be documented and approved by the EPA Regional Offices. Finally, the reporting organizations must also follow specific procedures when assessing the P&A of their measurement systems and must report the P&A data to EPA quarterly. Starting January 1, 1981, these regulations became effective for National Air Monitoring Sites (NAMS), and beginning January 1, 1983, for all State and Local Air Monitoring Stations (SLAMS).

The precision assessments were determined by performing repeated measurements on ambient-level "calibration" gases at two-week intervals for continuous methods, or by obtaining duplicate results from collocated samplers for manual methods. Table 1 summarizes the requirements for performing precision checks. The accuracy assessments were generally determined by analyzing blind audit materials traceable to NBS. Table 2 shows the concentration levels. During each calendar year, each site or instrument must be audited at least once. Details concerning the specific procedures and computations used to assess P&A are contained in the regulations.

TABLE 1. REQUIREMENTS FOR PERFORMING PRECISION CHECKS FOR SLAMS NETWORK

Parameter	Precision check level	Frequency
CO (continuous analyzer)	8 - 10 ppm	Once each 2 weeks
SO_2, NO_2, and O_3 (continuous analyzer)	0.08 - 0.10 ppm	Once each 2 weeks
TSP, SO_2, and NO_2 (manual)	Collocated sampler (Ambient concentration)	Once each 6 days
Pb	Duplicate strips (Ambient concentration)	Once each 6 days

TABLE 2. CONCENTRATION LEVELS FOR CONDUCTING ACCURACY AUDITS OF SLAMS NETWORK

Parameter	Level 1	Level 2	Level 3	Level 4
SO_2, NO_2, O_3 (continuous)	0.03-0.08 ppm	0.15-0.20 ppm	0.35-0.45 ppm	0.80-0.90 ppm
CO	3-8 ppm	15-20 ppm	35-45 ppm	80-90 ppm
TSP (flow only)		1.13-1.70 m^3/min		
SO_2 (manual)*	0.013-0.020 ppm	0.033-0.040 ppm	0.053-0.059 ppm	
NO_2 (manual)*	0.018-0.028 ppm	0.046-0.055 ppm	0.074-0.083 ppm	
Pb**	0.6-1.8 $\mu g/m^3$	3.5-5.9 $\mu g/m^3$		

*Concentration levels corresponding to flow rates of .2 L/min
**Concentration levels corresponding to flow rates of 50 cfm.

When a request is made to the NADB for ambient air quality monitoring data, the requestor receives the P and A data along with the routine monitoring data. The requestor, or user, of the data can feel more confident that the data are of the quality indicated by the assessments and that the data have been obtained from an agency having a planned and documented quality assurance system. The EPA can also rely on the data in producing its control strategies and determining whether standards have been met.

SECTION 2

NATIONAL RESULTS

NATIONAL DATA REPORTING

Measures of data reporting are the percentages of reporting organizations which were required to report data for particular pollutants and which have reported results for at least one calendar quarter for those pollutants. Table 3 shows the progress in data reporting over the years 1981, 1982 and 1983. Improvement continues for the continuous NO_2 method; however, the percentage still lags behind that for continuous CO, SO_2 and O_3 methods. Reporting for the manual methods for Pb, SO_2 and NO_2 was required by the regulations beginning January 1, 1983. The fact that 1983 was the first year for reporting the manual SO_2 and NO_2 methods is perhaps one reason for the percentage data reporting being somewhat low. Another reason may be the fact that these manual methods are being replaced by the continuous methods, which are much more precise and accurate.

The reporting organizations which should have reported data for 1983 but did not are listed in Section 3.

TABLE 3. NATIONAL PERCENT DATA REPORTING FOR REQUIRED PRECISION AND ACCURACY

Pollutant measurement	1981	1982	1983
CO	77	89	99
SO_2	82	93	96
NO_2	56	72	88
O_3	83	89	99
TSP	94	97	99
Pb	—	—	93
SO_2 (manual)	—	—	75
NO_2 (manual)	—	—	86

NATIONAL ACTIVITY IN PERFORMING PRECISION CHECKS AND ACCURACY AUDITS

A review of Tables 4 and 5 clearly indicates the considerable increase in the number of precision checks from the beginning of the PARS system through 1983 for all pollutant methods. The increase in effort resulted because of the effectivity of the regulation requirements for P and A data for the NAMS sites on January 1, 1981 and for the SLAMS on January 1, 1983. The reduction in the manual NO_2 and SO_2 methods has no doubt resulted from the replacement of the manual methods with continuous analyzers.

For the manual methods, Table 4 shows the average number of data pairs per collocated site for precision checks and the average number of accuracy audits per sampler. If the collocated samplers are operated every sixth day, there should be 365/6=61 data pairs per year, assuming that all the results are above the detection limit. This level of precision checks is being approached for the TSP, Pb, and NO_2 methods, but for the manual SO_2 method, the number of precision checks is only about 50 percent of the required number. The regulations require that each TSP sampler/site be audited for accuracy at least once each year, and that the other manual methods be audited at least twice per quarter. The computed average number of audits per sampler is well above the required frequency.

For the continuous methods, the minimum frequency for precision checks is once every two weeks or 26 per year. Table 5 indicates that each year nearly 60 precision checks are made per analyzer for the SO_2 method and between 35 and 40 for the other methods. The regulations require at least one accuracy audit per analyzer/site per year. The table indicates that this requirement is being met on the average for only the CO method. The average number of audits per analyzer for the SO_2, NO_2 and O_3 methods indicates that from 5 to 14 percent of the analyzers are not being audited as required by the regulations. (Note: The tabulated values consider only the audits at the three lower concentration levels. Analyzers used for episode monitoring, requiring level four audits, are not considered.)

1983 RESULTS FROM THE PARS PROGRAM

The measures of precision and accuracy are required to be computed and reported for each calendar quarter by each Reporting Organization (a State or local agency) as percentage values. For precision, the repeatability for each check is measured as the deviation from expected values as a percentage of the expected value. For accuracy, the deviation of the audit value from the true value is measured as a percentage of the true value. For both precision and accuracy, 95 percent probability limits are computed for the percentage values from the average and standard deviations of the individual percentage values:

TABLE 4. YEAR-TO-YEAR ACTIVITY OF PRECISION AND ACCURACY ASSESSMENTS FOR THE MANUAL METHODS

			Precision			Accuracy	
Pollutant	Year	Avg. no. of samplers	Avg. no. of collocated sites	No. of valid collocated data pairs	No. of data pairs per site	No. of audits x levels	No. of audits per sampler
TSP	1981	2,334	317	13,335	42.1	5,840	2.5
	1982	2,538	338	16,281	48.2	6,461	2.6
	1983	2,662	342	16,816	49.2	6,989	2.6
Pb	1981	73	13	473	36.4	581	4.0
	1982	164	32	1,704	53.2	655	2.0
	1983	452	76	3,885	51.1	1,389	1.5
NO_2	1981	185	38	1,422	37.4	769	4.2
	1982	83	25	1,168	46.7	583	2.3
	1983	77	25	1,324	53.0	348	1.5
SO_2	1981	172	34	965	28.4	711	1.4
	1982	63	21	706	33.6	551	2.9
	1983	46	15	389	25.9	301	1.1

TABLE 5. YEAR-TO-YEAR ACTIVITY OF PRECISION AND ACCURACY ASSESSMENTS FOR THE CONTINUOUS METHODS

Pollutant	Year	Avg. no. of analyzers	Precision: No. of precision checks	Precision: Precision checks per analyzer	Accuracy: No. of accuracy audits x levels	Accuracy: No. of audits per analyzer
CO	1981	282	8,248	29.2	856	1.01
	1982	354	13,089	37.0	1,180	1.11
	1983	447	15,714	35.2	1,501	1.12
SO_2	1981	420	10,851	25.8	1,016	0.81
	1982	566	23,144	36.6	1,248	0.73
	1983	633	36,887	58.3	1,625	0.86
NO_2	1981	127	2,498	19.7	320	0.84
	1982	193	6,876	35.6	442	0.76
	1983	235	9,299	39.6	635	0.90
O_3	1981	404	10,536	26.1	1,162	0.96
	1982	514	18,964	36.9	1,328	0.86
	1983	598	21,342	35.7	1,705	0.95

$$\overline{D} \pm 1.96\ S$$

where $\overline{D}$ = the average of the individual percent differences;
S = the standard deviation of the individual percent differences;*
1.96 = the multiplication factor corresponding to 95% probability.

It is these upper and lower 95% probability limits which are reported and discussed in this report.

Moreover, it should be noted that the data and the evaluations presented in this report include any outlier values which may have been reported by the States and local agencies. It is possible that the presence of outliers might influence such comparisons by having undue impact on average values for individual reporting organizations.

Table 6 exhibits the national values for each of the manual pollutants. The probability limits in Tables 6 and 7 represent the unweighted arithmetic averages of all the reported probability limits for 1983. Historically, probability limits have been combined in this manner for this report. Thus, for continuity and comparisons to show trends, the unweighted average method was used here. A more statistically pure procedure for combining probability limits, which is described in Appendix B, is now being used in EPA's PARS system. By examining the numbers of valid collocated data pairs (16,816) and the number of audits (6989) performed for TSP, one can appreciate the amount of effort being expended in this country to obtain these data quality assessments.

TABLE 6. NATIONAL PRECISION AND ACCURACY PROBABILITY LIMIT VALUES FOR MANUAL METHODS FOR 1983

	Precision			Accuracy						
					Probability limits (%)					
	Number of valid collocated data pairs	Probability limits (%)		No. of audits	Level 1		Level 2		Level 3	
Pollutant		Lower	Upper		Lower	Upper	Lower	Upper	Lower	Upper
TSP	16,816	-11	+12	6,989	—	—	-6	+6	—	—
Lead	3,885	-14	+15	1,389	-8	+7	-6	+4	—	—
Sulfur dioxide	389	-28	+41	301	-14	+7	-9	+5	-7	+4
Nitrogen dioxide	1,324	-19	+21	348	-6	+10	-5	+6	-5	+6

---

*For the precision of manual methods obtained from paired observations, the standard deviation, S, is divided by $\sqrt{2}$, to obtain variability estimates that apply to individual reported values.

The precision limits reflect the repeatability of the methodology used in the field to collect and analyze the samples at ambient levels. The spread of the limits may be somewhat inflated due to measurements at relatively low concentration levels.

The accuracy of the manual methods indicates the limits at predetermined concentration levels for the chemical analysis performed in the samples for lead, sulfur dioxide, and nitrogen dioxide. For the TSP method, the accuracy measurement is for the flow rate only. The probability limits for manual accuracy are very good and reflect the quality of work done in the chemical laboratories for lead, sulfur dioxide, and nitrogen dioxide analyses, and in the field for flow rate measurement for the TSP method. Because of the continual replacement of the manual SO_2 and NO_2 methods with continuous methods, further discussion of the manual methods is limited. The detailed results, however, are tabulated in Appendix D for each reporting organization.

The precision and accuracy limits for automated methods are presented in Table 7. Apparent from the number of precision checks, for example 36,887 for SO_2, the effort expended is appreciable for the collection of quality assurance precision and accuracy data, but necessary to assess data quality. Details of the results are discussed in the analysis section.

TABLE 7. NATIONAL PRECISION AND ACCURACY PROBABILITY LIMIT VALUES FOR AUTOMATED ANALYZERS FOR 1983

	Precision			Accuracy						
	No. of precision checks	Probability limits (%)		No. of audits	Probability limits (%)					
					Level 1		Level 2		Level 3	
		Lower	Upper		Lower	Upper	Lower	Upper	Lower	Upper
SO_2	36,887	-13	+8	1,791	-15	+10	-12	+10	-11	+9
O_3	21,342	-10	+9	1,920	-11	+10	-8	+7	-8	+6
CO	15,714	-8	+6	1,515	-12	+9	-6	+6	-5	+4
NO_2	9,299	-13	+12	680	-19	+15	-12	+9	-11	+6

NATIONAL PRECISION RESULTS COMPARISON

Figure 1 shows the national values for precision for the various methods. With data from three years, some minor trends are evident. Some slight improvement, as measured by a reduction in the spread of the limits, is noted for TSP and the continuous methods, except for NO_2. The persistent negative bias for the continuous SO_2 method indicates that on the average there is some negative instrument drift from the most recent calibration or instrument adjustment to the time of the biweekly precision check.

Although the manual methods for Pb, SO_2, and NO_2 were not required to be reported until 1983, a number of agencies began reporting in 1981. The results for Pb show a decided improvement. The manual SO_2 and NO_2 methods are much more variable than the continuous methods, and, although the limits were worse in 1982 than 1981, the results for 1983 are appreciably better than in 1981.

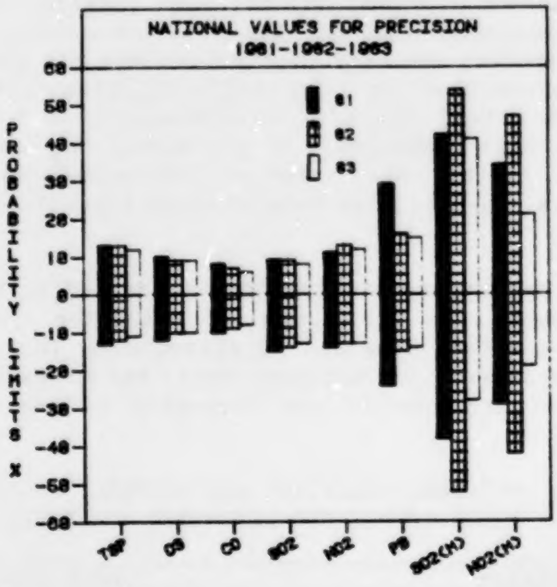

Figure 1. National precision values for 1981, 1982 and 1983.

NATIONAL ACCURACY RESULTS COMPARISON

Figures 2a and 2b show the national values for accuracy audits for the manual and continuous methods, respectively. Improvement for the manual methods is not evident except perhaps for Pb and SO_2 level 1. Slight improvement is evident for all the continuous methods. The continuous methods for SO_2 and NO_2 show more inaccuracy than all other methods. However, it is pointed out that the accuracy audits for the manual methods check only a portion of the measurement method.

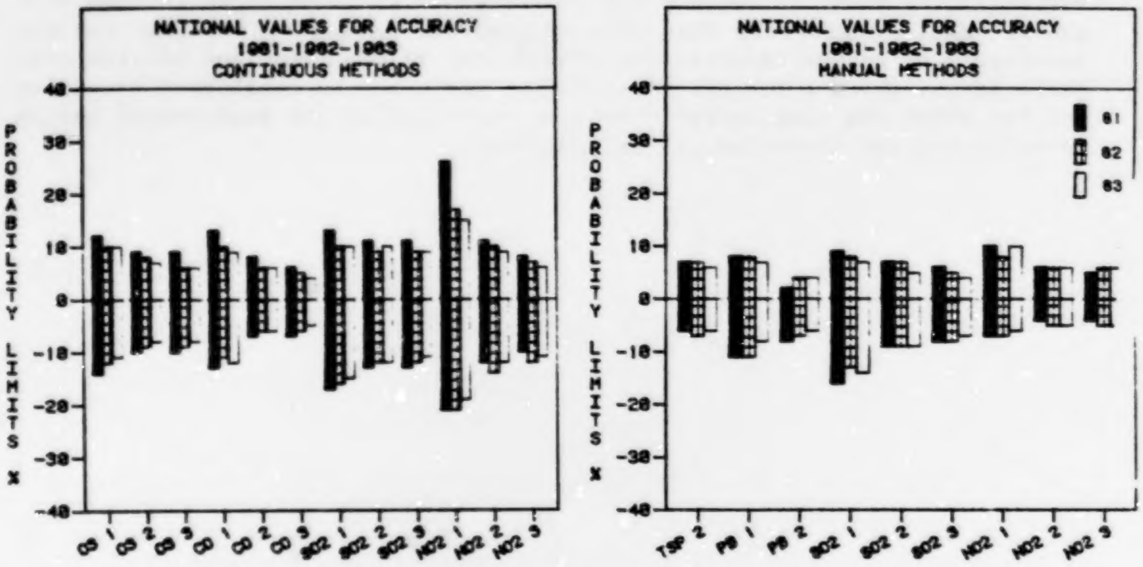

Figure 2. National accuracy values for 1981, 1982 and 1983.

The most consistent improvement has occurred with the O_3 method. Although the continuous NO_2 method is more variable than the other methods, it has shown the greatest improvement, particularly for the level 1 concentration.

The general, and expected, pattern of variability across levels is very evident, with the greatest percentage variability at the lowest concentration levels. The slight negative biases for the continuous SO_2 and NO_2 methods are consistent across all three levels. This indicates that, on the average, there appears to be a negative drift with these analyzers from the time of last calibration or instrument adjustment until the time of the accuracy audit.

NATIONAL FREQUENCIES

Table 8 contains the 1983 frequency distributions for precision probability limits and accuracy probability limits at levels 1, 2 and 3. The frequencies are based on the total number of reporting-organization-quarters of data. The individual quarter of data consists of an upper and lower probability limit for precision, and upper and lower probability limits for accuracy for each of the levels. The narrower the distribution, the better the data quality. For example, for precision for CO, the upper 5 percentile value for the upper limit is +14%, and the lower 5 percentile value for the lower limit is -18%. It can be seen from both Figure 2 and Table 8 that CO shows the tightest range of the pollutants presented. The variabilities shown in Table 8 are consistent with those shown in Figures 1 and 2. And, in general, the variabilities are less for 1983 than for the corresponding values reported for 1982.[3] The 95th percentiles provide criteria beyond which a reported probability limit may be considered excessive and for which the computation should be rechecked or the measurement system investigated and corrected, if so indicated.

TABLE 8. CUMULATIVE FREQUENCY DISTRIBUTIONS OF QUARTERLY PROBABILITY LIMITS FOR ALL REPORTING ORGANIZATIONS (1983)

MANUAL METHODS

POLLUTANT	NUMBER OF	LOWER PROBABILITY LIMIT												STD	UPPER PROBABILITY LIMIT												STD
LEVEL	REP.ORG.-QTR	MIN	01%	05%	10%	25%	50%	75%	90%	95%	99%	MAX	MEAN	DEV	MIN	01%	05%	10%	25%	50%	75%	90%	95%	99%	MAX	MEAN	DEV
I11101 - TSP																											
PRECISION	558	-71	-42	-26	-21	-14	-09	-06	-04	-02	+01	+07	-11	8.6	-23	+01	+02	+04	+07	+10	+15	+21	+29	+53	+99	+12	9.9
ACC-LVL 2	547	-36	-26	-15	-12	-08	-06	-03	-01	-00	+03	+08	-06	5.3	-29	-04	-01	+01	+03	+05	+09	+12	+16	+27	+52	+06	6.1
I12128 - PB																											
PRECISION	290	-95	-56	-38	-27	-18	-10	-06	-03	-01	-00	+02	-14	12.2	-02	-00	+01	+03	+06	+11	+20	+34	+46	+80	+99	+15	15.1
ACC-LVL 1	249	-71	-31	-22	-17	-11	-06	-03	-00	+01	+07	+22	-08	8.5	-07	-04	-02	-00	+03	+06	+10	+16	+18	+30	+96	+07	10.0
ACC-LVL 2	249	-51	-26	-18	-14	-09	-05	-02	-00	+02	+06	+07	-06	6.5	-10	-06	-03	-01	+01	+03	+08	+11	+14	+29	+39	+04	6.0
I42602 - NO2																											
PRECISION	48	-87	-87	-58	-38	-24	-16	-09	-06	-00	-00	-00	-19	16.3	-12	-12	-00	+01	+10	+15	+31	+48	+58	+80	+80	+21	18.9
ACC-LVL 1	44	-23	-23	-16	-13	-10	-05	-02	-01	-00	+05	+05	-06	5.3	+01	+01	+02	+03	+05	+07	+15	+25	+30	+32	+32	+10	8.1
ACC-LVL 2	44	-26	-26	-19	-16	-07	-02	-01	-00	-00	+01	+01	-05	6.6	-00	-00	+02	+03	+04	+06	+07	+10	+14	+23	+23	+06	4.1
ACC-LVL 3	44	-27	-27	-17	-13	-07	-03	-01	-00	+01	+03	+03	-05	6.5	+01	+01	+01	+01	+04	+05	+07	+09	+15	+30	+30	+06	5.3
I42401 - SO2																											
PRECISION	32	-99	-99	-99	-99	-53	-20	-00	+02	+25	+79	+79	-28	40.5	-00	-00	-00	-00	+10	+37	+75	+99	+99	+99	+99	+41	35.0
ACC-LVL 1	36	-46	-46	-44	-26	-17	-11	-07	-04	-01	-00	-00	-14	10.8	-05	-05	-00	-00	+03	+06	+09	+17	+24	+29	+29	+07	7.0
ACC-LVL 2	36	-36	-36	-31	-21	-12	-08	-03	-00	-00	+02	+02	-09	8.3	-02	-02	-00	+01	+02	+04	+08	+13	+14	+14	+14	+05	4.0
ACC-LVL 3	36	-23	-23	-22	-17	-09	-06	-03	-01	-00	-00	-00	-07	5.9	-02	-02	-01	+01	+02	+04	+06	+07	+08	+10	+10	+04	2.8

(Continued)

TABLE 8. CUMULATIVE FREQUENCY DISTRIBUTIONS OF QUARTERLY PROBABILITY LIMITS FOR ALL REPORTING ORGANIZATIONS (1983)

AUTOMATED ANALYZERS

POLLUTANT LEVEL	NUMBER OF REP.ORG.-QTR	LOWER PROBABILITY LIMIT MIN	01%	05%	10%	25%	50%	75%	90%	95%	99%	MAX	MEAN	STD DEV	UPPER PROBABILITY LIMIT MIN	01%	05%	10%	25%	50%	75%	90%	95%	99%	MAX	MEAN	STD DEV
C42101 - CO																											
PRECISION	382	-61	-35	-18	-14	-10	-07	-04	-03	-02	+02	+07	-08	6.5	-11	-04	-00	+01	+03	+06	+09	+12	+14	+22	+41	+06	4.9
ACC-LVL 1	303	-99	-52	-29	-24	-15	-09	-05	-01	-00	+04	+06	-12	11.7	-14	-10	-04	-00	+03	+08	+13	+19	+27	+53	+99	+09	11.7
ACC-LVL 2	303	-44	-28	-18	-13	-08	-05	-02	-01	-00	+04	+06	-06	6.4	-07	-03	-01	-00	+02	+05	+09	+13	+17	+27	+60	+06	6.6
ACC-LVL 3	300	-45	-23	-15	-11	-07	-04	-02	-00	+01	+04	+05	-05	5.4	-07	-03	-02	-00	+01	+03	+07	+10	+14	+25	+34	+04	5.0
ACC-LVL 4	9	-06	-06	-06	-06	-04	-02	-00	+01	+01	+01	+01	-02	2.4	-04	-04	-04	-04	+02	+03	+03	+07	+07	+07	+07	+03	3.1
C42401 - SO2																											
PRECISION	411	-43	-32	-25	-22	-17	-12	-09	-07	-05	-03	+05	-13	6.3	-07	-03	+01	+02	+04	+07	+11	+15	+20	+26	+42	+08	6.0
ACC-LVL 1	313	-98	-58	-37	-29	-20	-13	-08	-03	-00	+06	+15	-15	13.2	-29	-19	-05	-00	+03	+09	+15	+23	+30	+49	+61	+10	11.3
ACC-LVL 2	316	-62	-52	-28	-24	-15	-10	-06	-02	-00	+06	+09	-12	9.9	-23	-14	-02	+01	+04	+08	+14	+21	+31	+41	+68	+10	10.0
ACC-LVL 3	312	-62	-46	-26	-22	-14	-10	-06	-02	-00	+07	+13	-11	9.2	-21	-11	-02	-00	+04	+08	+13	+19	+28	+39	+73	+09	9.5
ACC-LVL 4	40	-18	-18	-15	-14	-10	-06	-03	-00	+01	+01	+01	-07	4.9	-01	-01	-00	+01	+03	+06	+08	+12	+19	+22	+22	+06	4.7
C42602 - NO2																											
PRECISION	261	-65	-35	-29	-25	-17	-11	-06	-03	-02	+03	+13	-13	10.2	-09	-00	+03	+04	+07	+10	+15	+22	+27	+44	+97	+12	9.7
ACC-LVL 1	178	-99	-89	-69	-38	-24	-14	-08	-02	-00	+03	+12	-19	18.6	-30	-17	-07	-02	+04	+12	+23	+38	+50	+99	+99	+15	18.9
ACC-LVL 2	180	-77	-70	-31	-25	-18	-10	-04	-00	+01	+04	+08	-12	12.3	-25	-12	-03	-00	+03	+08	+13	+20	+26	+37	+49	+09	9.2
ACC-LVL 3	179	-77	-48	-27	-23	-15	-09	-03	-01	-00	+05	+08	-11	10.2	-25	-12	-03	-02	+01	+06	+10	+16	+18	+36	+46	+06	7.9
ACC-LVL 4	16	-28	-28	-28	-26	-14	-07	-04	-01	+02	+02	+02	-10	8.8	-00	-00	-00	+01	+03	+05	+10	+25	+26	+26	+26	+07	7.8
C44201 - O3																											
PRECISION	431	-33	-29	-20	-16	-12	-09	-06	-04	-02	-00	+08	-10	5.6	-04	-00	+02	+03	+05	+08	+12	+16	+20	+31	+43	+09	5.9
ACC-LVL 1	332	-60	-42	-28	-24	-16	-09	-05	-01	+01	+05	+09	-11	9.6	-08	-06	-01	+01	+04	+09	+14	+21	+27	+40	+60	+10	8.9
ACC-LVL 2	331	-37	-33	-20	-17	-12	-07	-04	-01	-00	+04	+07	-08	6.8	-08	-06	-01	-00	+03	+06	+09	+14	+18	+29	+51	+07	6.5
ACC-LVL 3	330	-38	-31	-20	-17	-11	-07	-04	-01	-00	+04	+08	-08	6.7	-16	-05	-02	-00	+02	+05	+09	+14	+18	+28	+33	+06	6.5
ACC-LVL 4	43	-19	-19	-17	-12	-10	-06	-03	-02	-01	+03	+03	-07	4.2	-04	-04	-01	-00	+02	+04	+07	+08	+09	+14	+14	+04	3.5
C42601 - NO																											
PRECISION	3	-18	-18	-18	-18	-18	-17	-17	-17	-17	-17	-17	-17	0.6	-00	-00	-00	-00	-00	+05	+06	+06	+06	+06	+06	+04	3.2

SECTION 3

REGIONAL RESULTS

REGIONAL DATA REPORTING

All reporting organizations having SLAMS/NAMS sites for given pollutants are required to report P and A data. The numbers of such reporting organizations are listed in Table 9. Note that only four reporting organizations use the manual SO_2 method at SLAMS sites and only seven use the manual NO_2 method.

TABLE 9. TOTAL NUMBER OF REPORTING ORGANIZATIONS REQUIRED TO REPORT BY POLLUTANT FOR THE YEAR 1983

	Automated methods				Manual methods			
Region	CO C42101	SO_2 C42401	NO_2 C42602	O_3 044201	TSP I11101	Pb I12128	SO_2 I42401	NO_2 I41602
I	6	6	4	6	6	5	0	0
II	3	4	2	3	4	3	0	0
III	10	11	12	12	16	9	0	1
IV	22	24	14	25	32	9	2	2
V	19	23	14	22	28	14	0	2
VI	10	11	10	10	14	10	0	1
VII	11	9	5	11	12	7	0	1
VIII	5	4	3	3	9	3	0	0
IX	11	9	9	11	12	8	2	0
X	4	3	2	2	4	4	0	0
Nation	101	104	75	105	137	72	4	7

The breakdown of data completeness (defined as the percentage of reporting organizations which reported P&A data to EPA as required each quarter) is given in Table 10.

TABLE 10. PERCENTAGE OF REPORTING ORGANIZATIONS WITH COMPLETE DATA IN PARS FOR THE YEAR 1983

	Automated pollutants				Manual pollutants			
Region	CO C42101	SO_2 C42401	NO_2 C42602	O_3 044201	TSP I11101	Pb I12128	SO_2 I42401	NO_2 I41602
I	85	92	56	79	98	95	——	——
II	92	66	100	96	72	75	——	——
III	100	100	96	99	99	88	——	100
IV	83	79	51	81	97	78	94	75
V	78	77	65	76	99	89	——	100
VI	91	82	70	96	95	83	——	63
VII	78	69	68	80	97	66	——	0
VIII	68	100	92	96	96	75	——	——
IX	77	60	58	75	82	59	50	——
X	88	88	81	94	100	59	——	——
Nation	83	80	69	84	95	79	72	73

NOTE: —— Means no data was required, there being no SLAMS sites for these pollutants.

For some reason, on a national basis, the percentages of reporting organizations submitting complete reports have decreased somewhat from 1982. Complete reporting is lowest for the continuous NO_2 method, only slightly worse than for the SO_2 and NO_2 manual methods.

A number of reporting organizations having SLAMS/NAMS sites for certain pollutants have reported no precision or accuracy data for 1983 for these pollutants:

Region	State	Reporting organization* Number	Name	Pollutant
I	NH	30001	New Hampshire	NO_2
II	VI	55001	Virgin Islands	SO_2
	VI	55001	Virgin Islands	TSP
IV	AL	01011	Alabama Dept. of Envir. Management	SO_2
	AL	01012	Jefferson County	NO_2
	NC	34003	Mecklenburg County	NO_2
	TN	44002	Memphis-Shelby County	NO_2
V	OH	36004	Ohio EPA, SE District	SO_2
	IN	15001	State of Indiana	NO_2
	IN	15002	Evansville	NO_2
	IN	15008	Indianapolis	Pb
VI	OK	37102	Oklahoma City-County	NO_2
	LA	19001	State of Louisiana	Pb
VII	IA	16002	Linn County	NO_2 (manual)
VIII	MT	27004	Missoula City-Co. Health Dept.	CO
IX	NV	29100	State of Nevada	CO
	NV	29200	Washoe County	NO_2
	NV	29100	State of Nevada	O_3
	NV	29300	Clark County	Pb
	GU	54100	Guam	SO_2
	GU	54100	Guam	TSP
	GU	54100	Guam	SO_2 (manual)
	HI	12120	Hawaii	SO_2
	HI	12120	Hawaii	NO_2
	CA	05036	San Diego	Pb

*A complete listing of the reporting organizations is given in Appendix C.

Precision and accuracy reporting for 1983 was complete only for the following Region and pollutant combinations:

Region	Pollutant
II	NO_2
III	CO
III	SO_2
III	NO_2 (manual)
V	NO_2 (manual)
VIII	SO_2
X	TSP

Considering the reporting for all pollutants and all reporting organizations, the reporting organizations of Region III were most complete (97%). Region VII data was the least complete.

Region	Percentage of reports complete
I	84
II	84
III	97
IV	80
V	83
VI	74
VII	65
VIII	88
IX	66
X	85

When considering the various pollutant methods across all Regions, reporting was most complete for TSP.

Pollutant	Percentage of reports complete
TSP	95
O_3	84
CO	83
SO_2	80
Pb	79
NO_2 (manual)	73
SO_2 (manual)	72
NO_2	69

As for prior years, reporting is less complete for the continuous NO_2 method than for all other methods. Appropriate allowance has been made for the quarters during which ozone is not monitored.

REGIONAL COMPARISONS

Figures 3 through 10 compare the precision and accuracy probability limits for 1981, 1982 and 1983. These comparisons are presented for each Region and for the nation as a whole on a pollutant by pollutant basis.

CO

All regions indicate some improvement in precision and most show improvement in accuracy at all levels (Figure 3). Noted exceptions for accuracy are Regions II and VI, which show more variability than in 1981 and 1982.

SO_2

Most regions show improvement in precision (Figure 4). Regions I, II, VI and IX indicate some degradation in accuracy. A negative bias persists in both precision and accuracy.

NO_2

Most regions show improvement in precision and accuracy (Figure 5). An exception for precision is Region X. Region VII continues to have the greatest variability in precision. Region VII also shows greater variability in accuracy at levels 1 and 2 than for previous years. The small negative bias in both precision and accuracy persists, similar to SO_2.

O_3

The precisions for most regions have not changed appreciably from 1982 (Figure 6). Region VII appears to show improvement over the three years; Region VIII appears to be getting worse. Slight improvement is indicated for most regions for accuracy at the three levels.

TSP

The charts (Figure 7) consistently show appreciably more variability in precision than accuracy. This results because the precision checks involve the total measurement process whereas the accuracy audit applies only to the flow portion of the process. On the average, minor improvements in both precision and accuracy are evident.

Pb

Figure 8 shows considerable variability in both precision and accuracy from region to region and also from year to year within some regions. This may be partly explained by the fact that assessments for Pb were not officially required until 1983, for which the results appear more uniform across regions. A noticeable negative bias exists for the level 2 accuracy audit results.

SO_2 (Manual)

The limits (Figure 9) are considerably wider for precision than for accuracy, except for Region VI which has very tight limits for precision. This large difference screams for an explanation. Wider limits for precision are expected since the results from collocated samplers involve the entire measurement process, whereas the accuracy audits involve only the chemical analytical portion. Negative biases in accuracy results are persistent from year to year for Regions IV and IX, but not for other regions.

NO_2 (Manual)

The results (Figure 10) are similar to other manual methods in that the precision limits are considerably wider than for accuracy. Regions V and VII reported no precision data for 1981 and 1982.

General

Taking into account the minor trends of improvement, the general consistency from year to year of the differences of results among pollutants and among levels of the same pollutants on a national basis, and among regions for given pollutants, is truly amazing. These appreciable differences which persist from year to year strongly indicate that whatever forces or causal factors are in action (at play) in each region and in each pollutant measurement system are very persistent over the years. These significant differences between regions should be investigated to identify the major causal factors, since some regions consistently produce more precise and accurate data than other regions.

Further, each region should evaluate the differences among the states and reporting organizations in a similar graphical manner as shown by Figures 3 through 10. Then investigations should be conducted to determine why some states or reporting organizations produce better precision and accuracy than others. Appropriate corrective actions should then be taken to improve the precision and accuracy of the reporting organizations having the worst results.

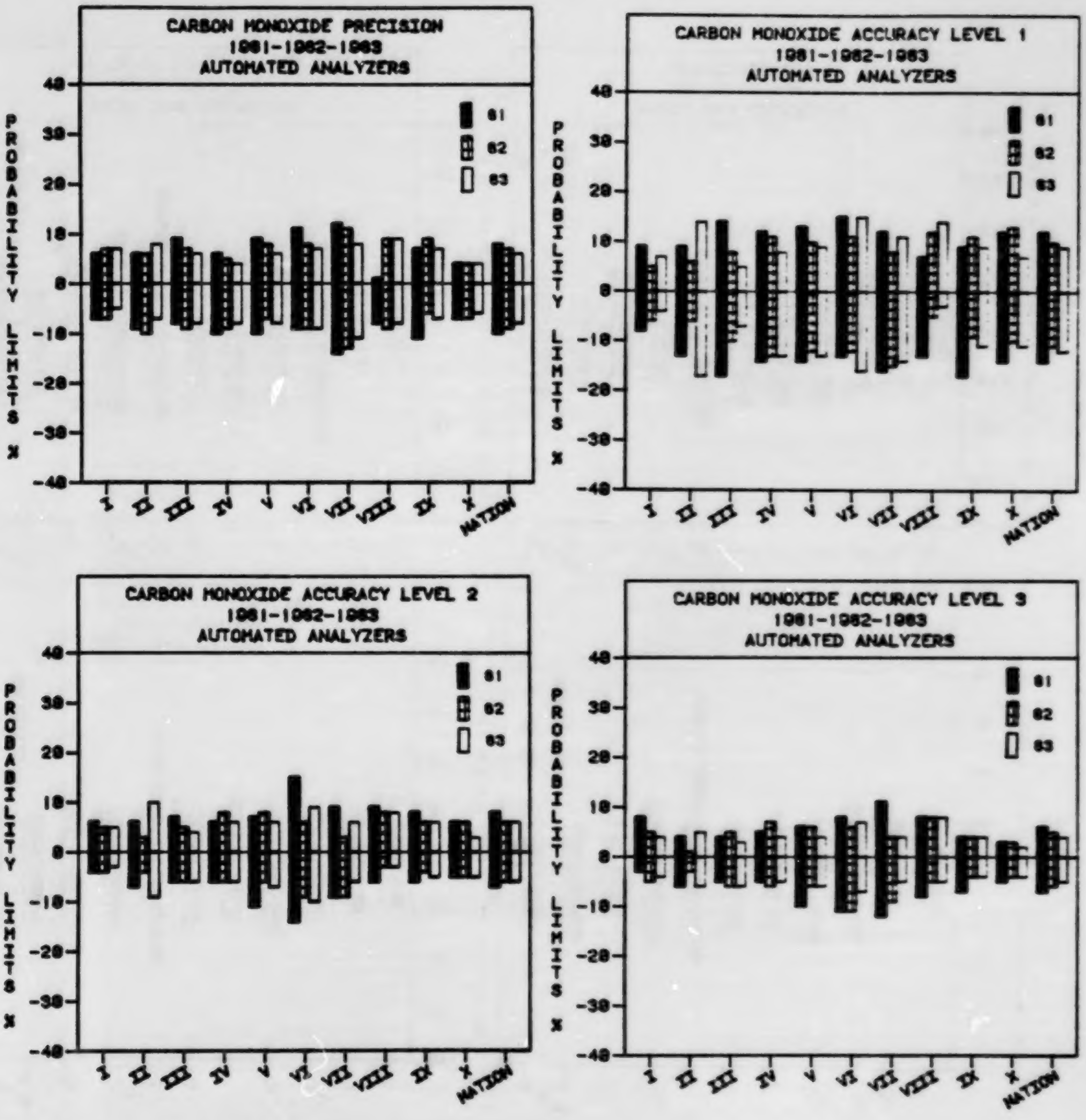

Figure 3. Carbon monoxide precision and accuracy by region for 1981, 1982, and 1983.

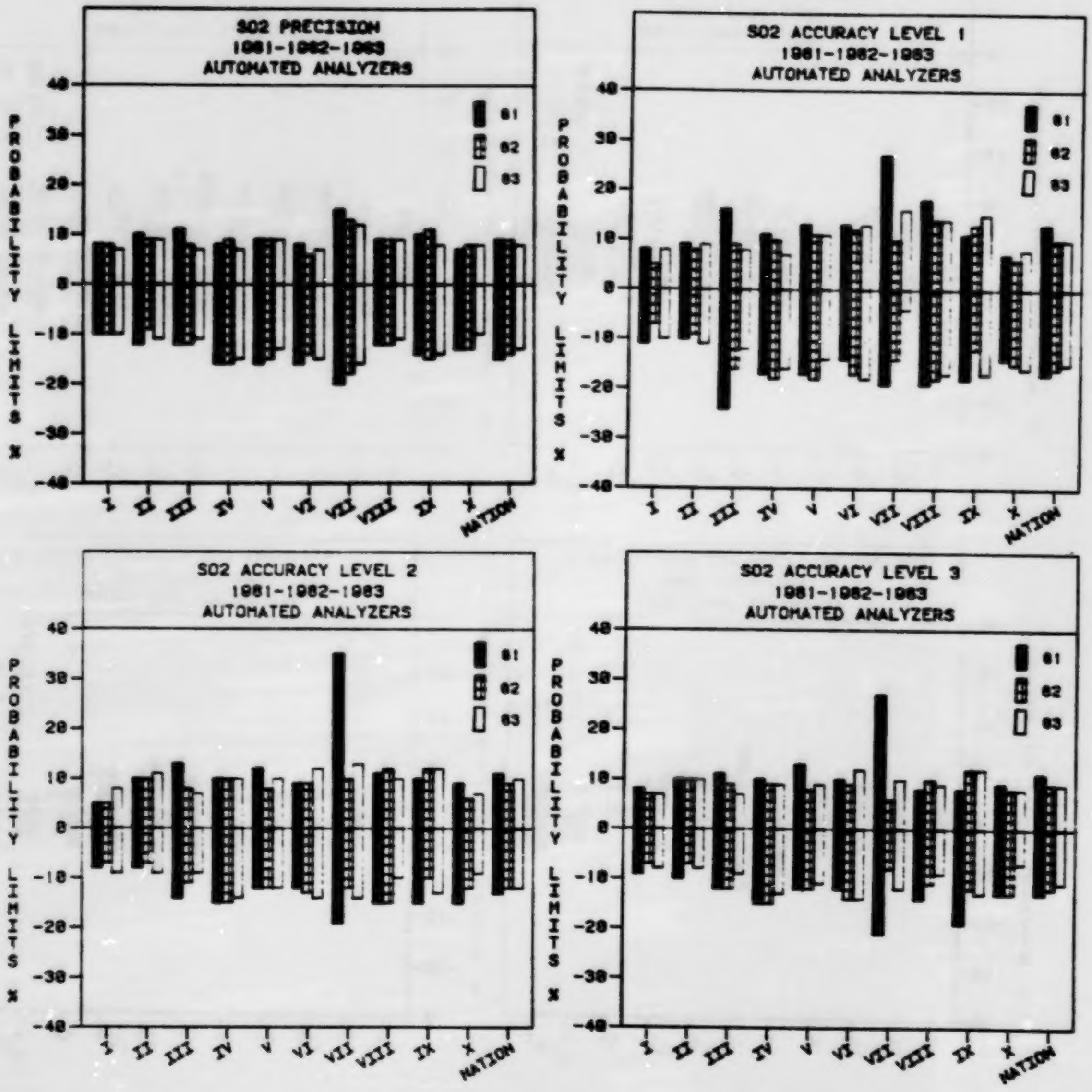

Figure 4. Continuous SO_2 precision and accuracy by region for 1981, 1982, and 1983.

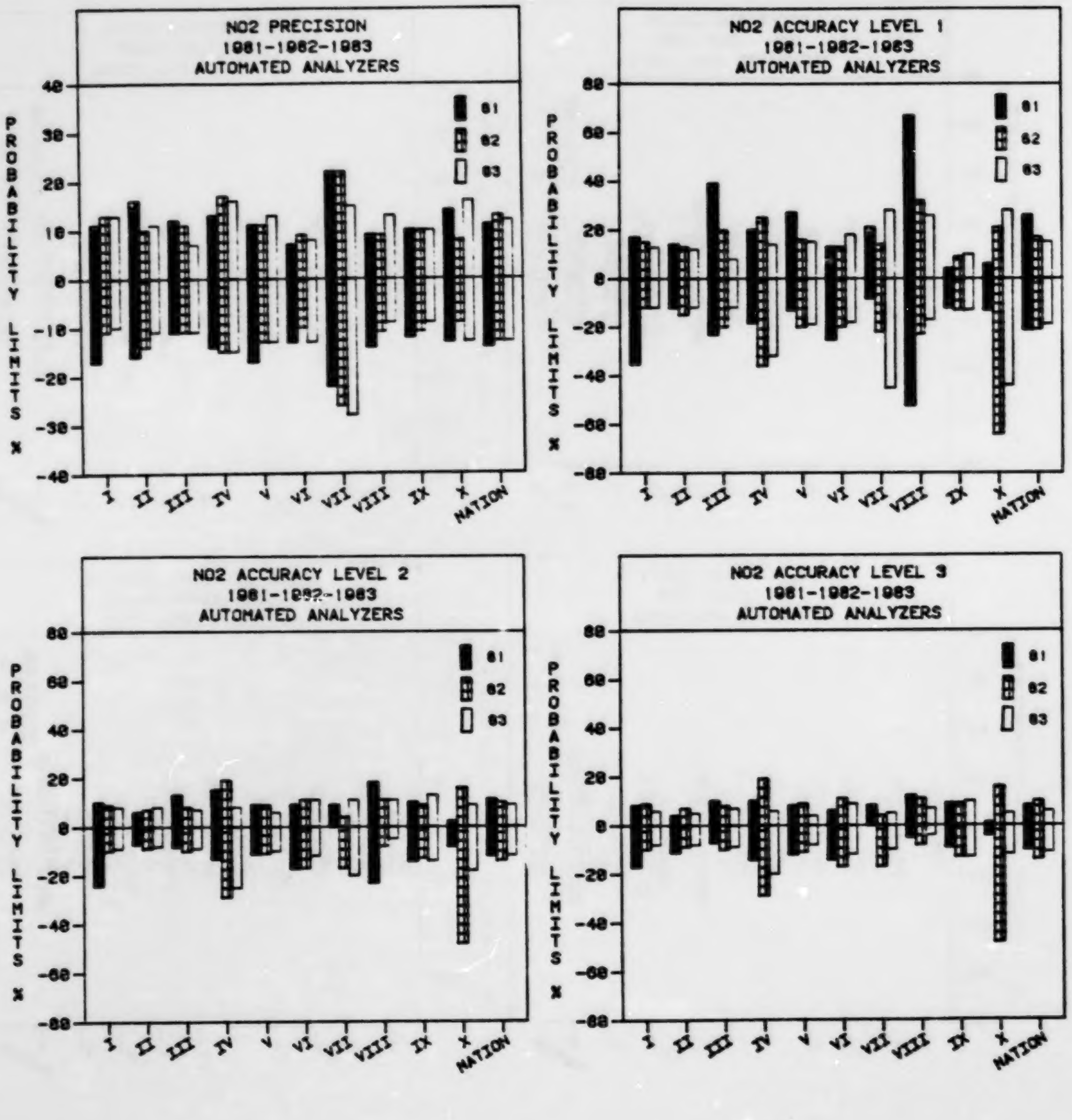

Figure 5. Continuous NO_2 precision and accuracy by region for 1981, 1982, and 1983.

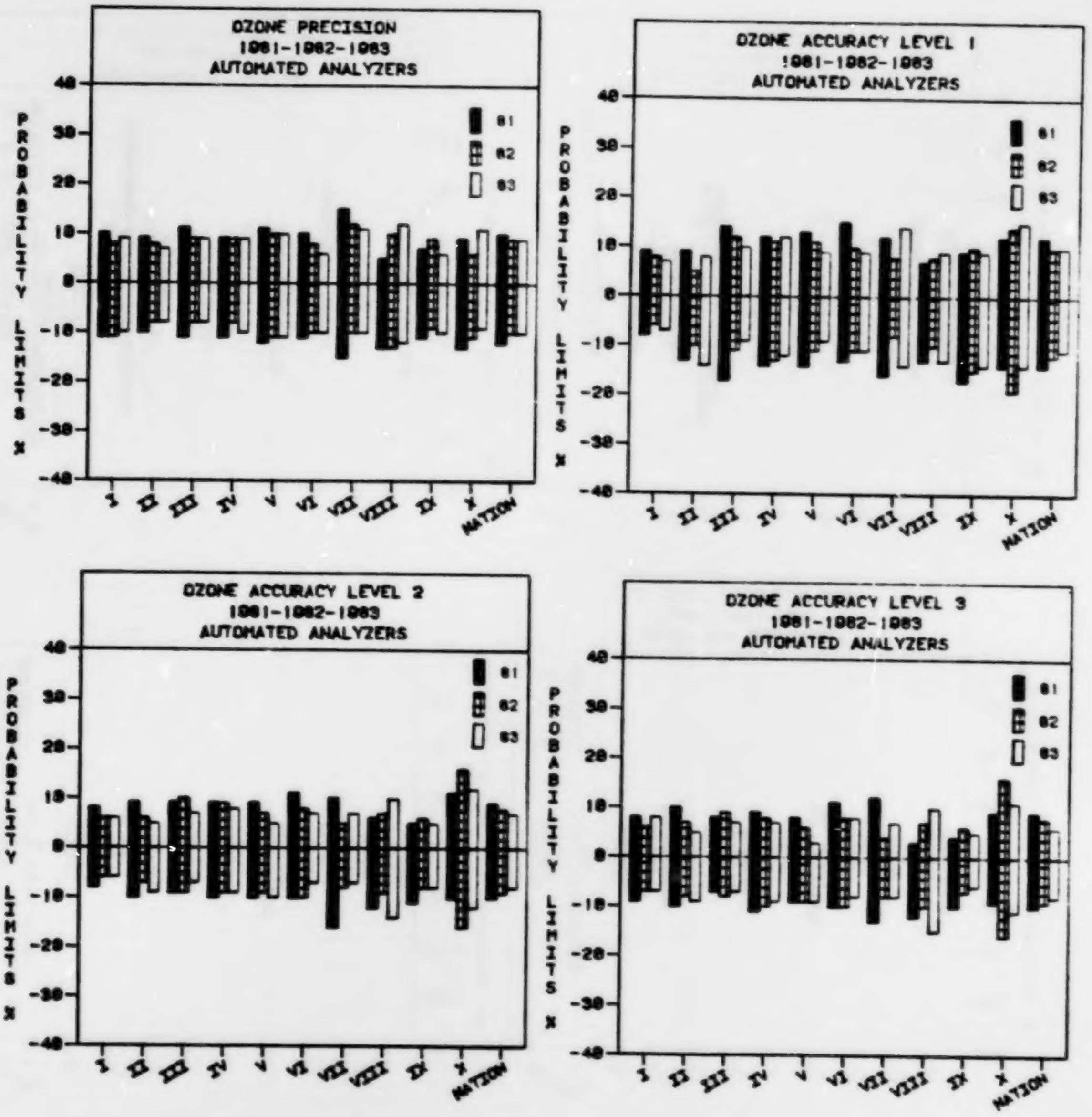

Figure 6. Ozone precision and accuracy by region for 1981, 1982, and 1983.

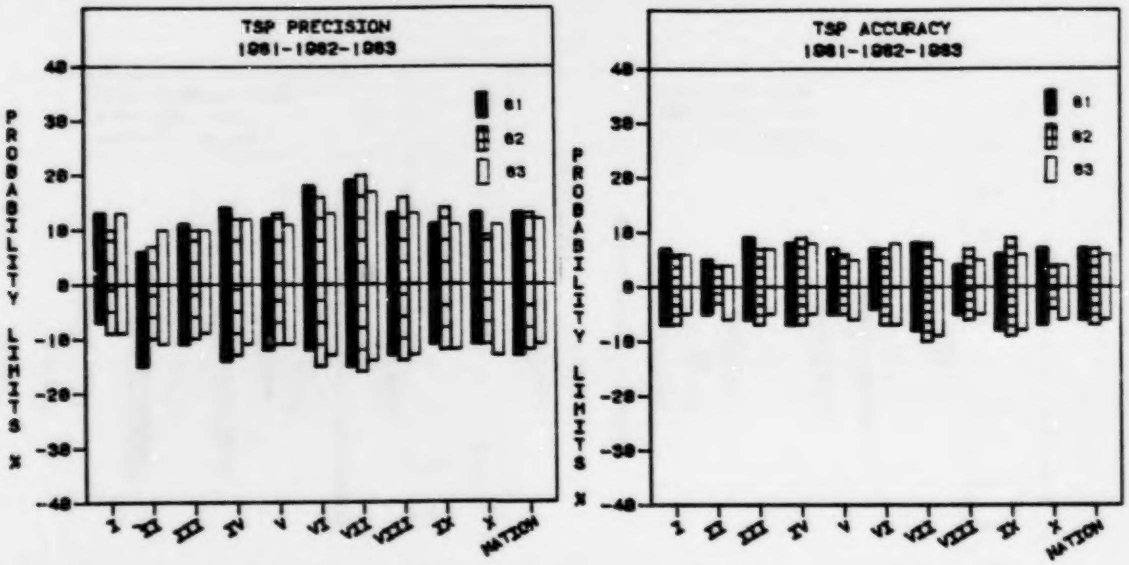

Figure 7. TSP precision and accuracy by region for 1981, 1982, and 1983.

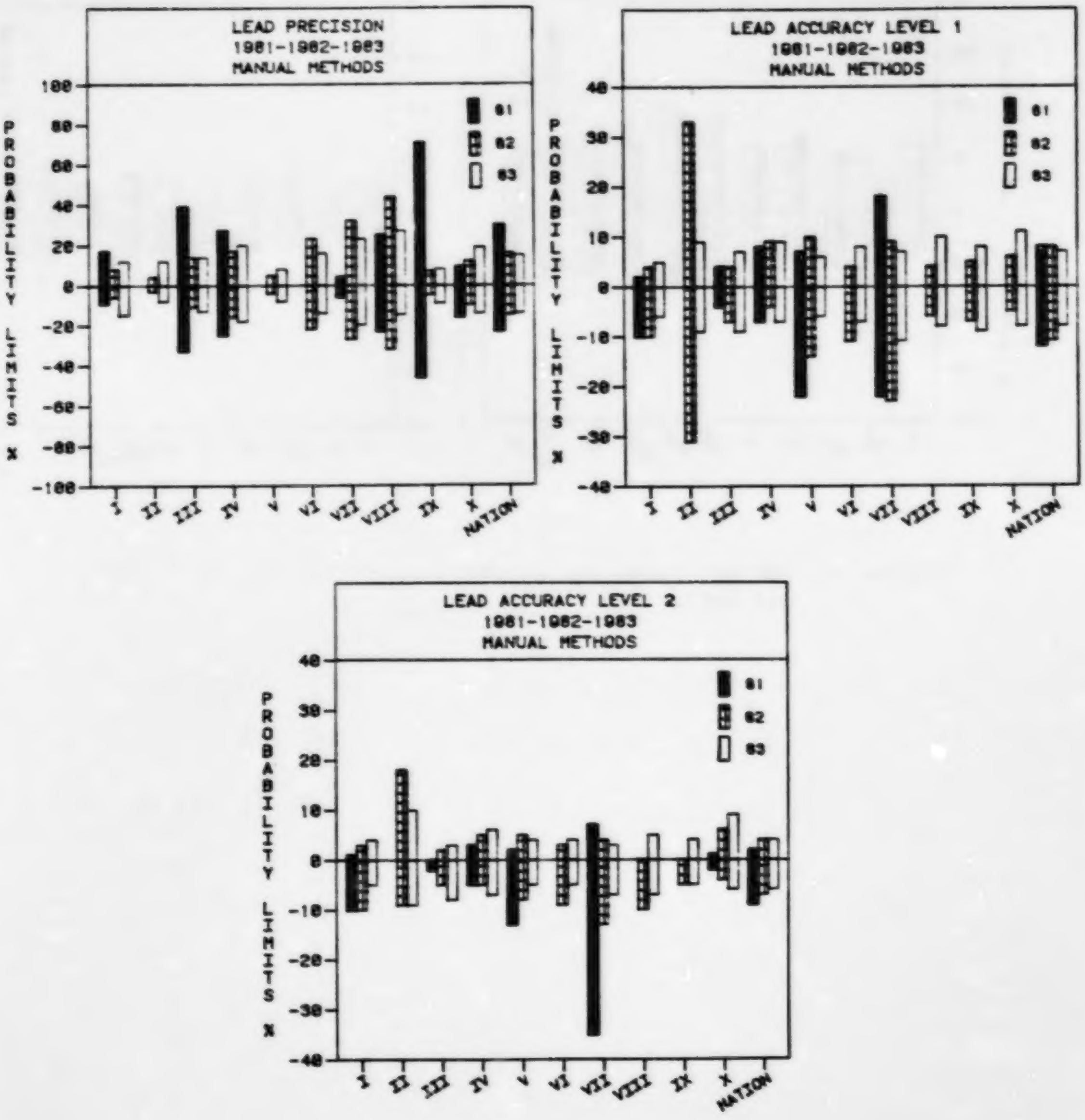

Figure 8. Lead precision and accuracy by region for 1981, 1982, and 1983.

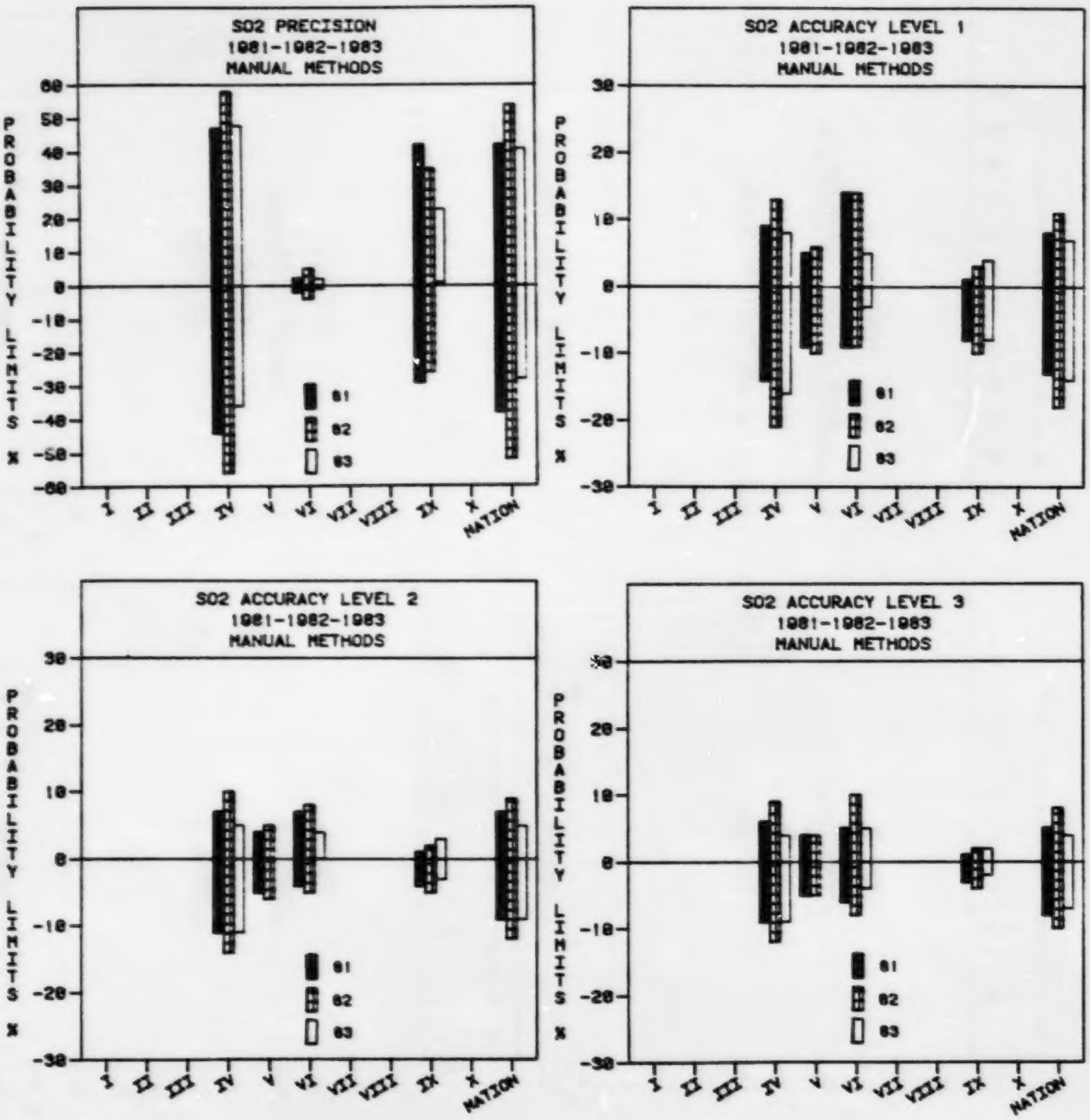

Figure 9. Manual SO_2 precision and accuracy by region for 1981, 1982, and 1983.

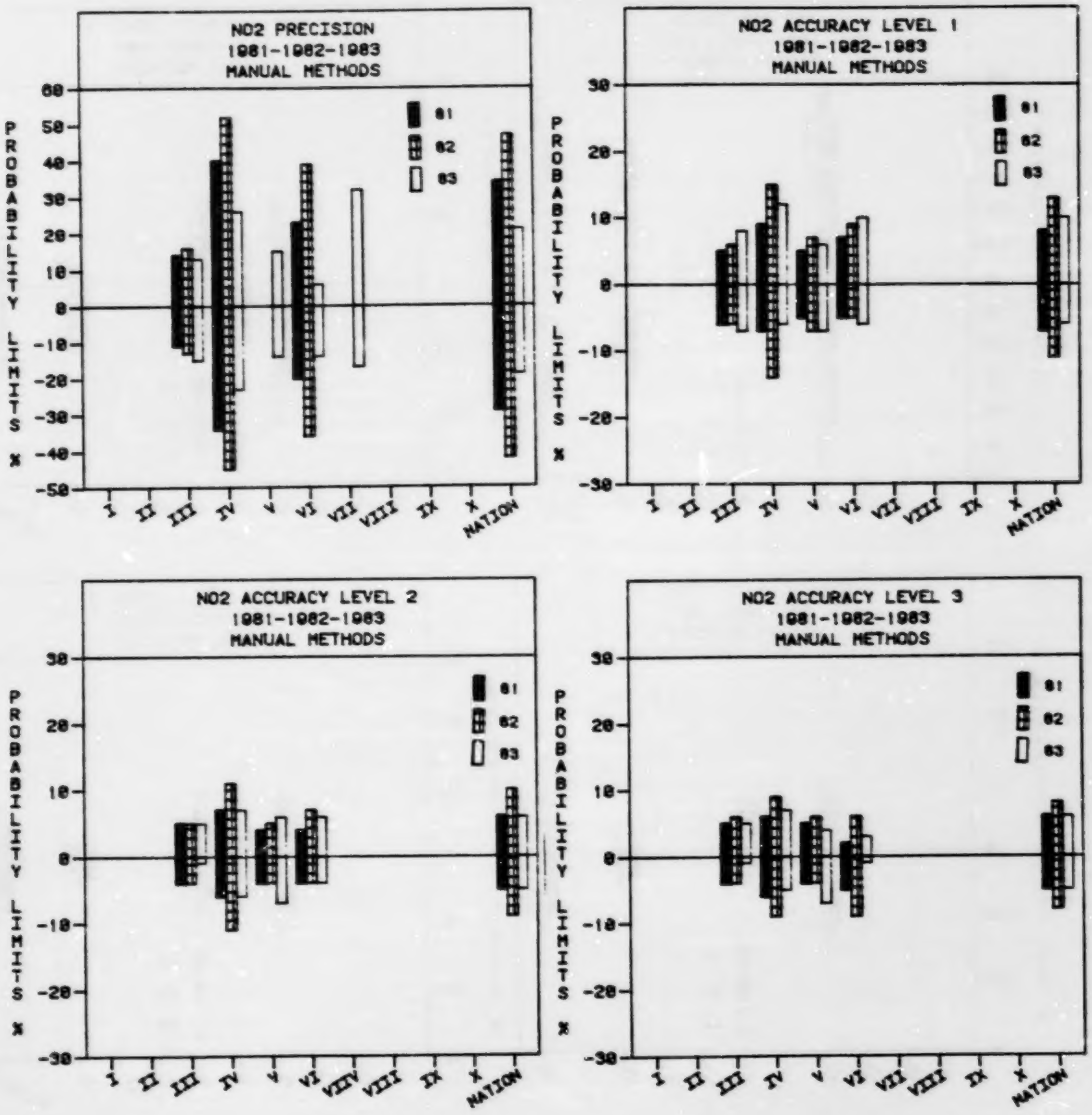

Figure 10. Manual NO_2 precision and accuracy by region for 1981, 1982, and 1983.

SECTION 4

RESULTS BY REPORTING ORGANIZATIONS

Table 11 shows the total number of Reporting Organizations reporting data to EMSL in 1983. By comparing the numbers between Tables 9 and 11, one can see the extra effort exerted by some of the State and local agencies to provide quality ssurance information in cases where they have no SLAMS or NAMS sites. There are an additional 10 reporting organizations for CO, 11 for continuous SO_2, 9 for continuous NO_2, 14 for ozone, 5 for TSP, 17 for Pb, 20 for manual SO_2 and 22 for manual NO_2. Apparently, these additional sites are special purpose monitoring sites or additional local sites not in the SLAMS/NAMS network.

TABLE 11. NUMBER OF REPORTING ORGANIZATIONS HAVING DATA IN THE PARS MASTER FILE FOR THE YEAR 1983

	Automated pollutants				Manual pollutants			
Region	CO C42101	SO_2 C42401	NO_2 C42602	O_3 044201	TSP I11101	Pb I12128	SO_2 I42401	NO_2 I41602
I	6	6	3	6	6	5	0	0
II	3	3	2	3	3	3	0	0
III	12	14	14	14	16	9	0	1
IV	30	33	25	36	37	29	21	22
V	19	24	13	24	30	13	0	2
VI	11	11	9	10	14	10	1	2
VII	11	10	6	11	12	7	0	1
VIII	5	4	3	3	9	3	0	0
IX	10	7	7	10	11	6	1	0
X	4	3	2	2	4	3	1	1
Nation	111	115	84	119	142	89	24	29

Appendix D shows the annual combined upper and lower probability limits for each reporting organization. Each reporting organization can compare their values with those of other reporting organizations and with the regional and national values. Also given for each reporting organization are the following informational items:

Continuous methods	Manual methods
No. of SLAMS and NAMS sites	No. of SLAMS and NAMS sites
No. of analyzers	No. of samplers
No. of precision checks	No. of collocated sites
No. of accuracy audits	No. of accuracy audits

Any user of monitoring data from some specific site and time period should obtain, from the local air monitoring agency, the precision and accuracy data for the specific sites and time periods involved.

NOTE: The regional and national probability limits shown in Appendix D have been calculated according to the most correct statistical procedure described in Appendix B, and do not agree with the unweighted arithmetical average values presented in the main body of the report. However, relative comparisons among regions, pollutants, years, accuracy levels, and precision versus accuracy comparisons are essentially the same by both methods.

SECTION 5

FURTHER EVALUATION OF PARS DATA

Some interesting comparisons can be made by considering the corresponding national averages of Tables 4 and 5 and the 50-percentile values of the probability limits of Table 6. Table 12 compares these limits by considering the spread, or range, of the limits.

TABLE 12. COMPARISON OF THE 50-PERCENTILE FREQUENCY DISTRIBUTION VALUES WITH THE NATIONAL LIMIT VALUES FOR 1983

		National values			50-percentile values		
		Lower limit	Upper limit	Range	Lower limit	Upper limit	Range
Manual methods							
TSP	Precision	-11	12	23	- 9	10	19
	Accuracy*	- 6	6	12	- 6	5	11
Pb	Precision	-14	15	29	-10	11	21
	Accuracy	- 6	4	10	- 5	3	8
NO_2	Precision	-19	21	40	-16	15	31
	Accuracy	- 5	6	11	- 2	6	8
SO_2	Precision	-28	41	69	-20	37	57
	Accuracy	- 9	5	14	- 8	4	12
Continuous methods							
CO	Precision	- 8	6	14	- 7	6	13
	Accuracy	- 6	6	12	- 5	5	10
O_3	Precision	-10	9	19	- 9	8	17
	Accuracy	- 8	7	15	- 7	6	13
NO_2	Precision	-13	12	25	-11	10	21
	Accuracy	-12	9	21	-10	8	18
SO_2	Precision	-13	8	21	-12	7	19
	Accuracy	-12	10	22	-10	8	18

*All accuracy values for all pollutants are for Level 2.

In all cases the spreads (ranges) of the probability limits are somewhat greater for precision than for accuracy and considerably so for the manual SO_2 and manual NO_2 methods. These differences are consistent for both the National averages and the 50-percentile values. These same relationships also existed for 1981 and 1982. (In practically every case the ranges are less for 1983 than for 1982.) This means that the short-term within-sampler variability (precision) is larger than the variability of accuracy which includes variations between, or among, samplers as well as imprecision within samplers. This may seem contradictory at first, but giving consideration to exactly how the results are obtained and what the results represent will provide a rational explanation.

TSP. In the case of TSP, the precision results are obtained from collocated sampler data. They introduce variability from the analytical filter weighing process, the filter handling and conditioning process, and also the flow rate measurement process; whereas the accuracy audit is a check only on the flow rate measurement. Further, the collocated sampler results are obtained at all ambient concentrations above 1 $\mu g/m^3$, the detection limit for the method. At low concentration levels the relative variability is greater than at higher concentrations. The combined effects of these two causes explain the wider limits for precision.

Manual SO_2 and NO_2. Similar to the TSP data, the precision results are obtained from collocated sampler data. They introduce variability from the flow measurement, absorbing solutions, sampling, sample handling, and storage effects (stability) of the samples as well as the laboratory analytical portion of the method; whereas the accuracy audit is a check only on the laboratory analytical portion of the method. Further, the collocated sampler results are obtained at all ambient concentrations above the detection limits of the methods. Many of these concentrations are below the concentrations of the accuracy audits. At lower concentrations, the relative variability is greater than at higher concentrations.

As noted from Table 12, these differences are considerable, indicating that only a small portion of the variability results from the laboratory analytical part of the method. A very considerable amount of variability of the method is attributed to other portions of the measurement process. The very wide limits of uncertainty attributed only to the imprecision of these methods strongly emphasizes that the manual methods should be replaced by the continuous anlayzers. Alternatively, if any reliance is to be placed on individual daily data from the manual methods, all of the various portions of the measurement processes must be much more closely controlled, if possible.

Pb. The precision estimates for Pb are obtained from the analysis of duplicate strips from the same hi-vol filter. Consequently, actual variability of Pb content across the length of the filter, filter handling (with possible loss of particulate), variation in cutting filter strips, and the extraction of real-world particulate are involved in addition to the chemical analytical portion of the method. The accuracy audit data are obtained from the chemical analysis of strips to which known amounts of water-soluble Pb salts have been added and thus do not involve the other portions of the measurement process, nor do they involve real-world particulates.

Further, similar to the other manual methods (TSP, NO_2, and SO_2), the precision estimates are obtained at all concentrations above the detection limit. Many of these concentrations are less than those of the accuracy audits. At lower concentrations, the relative variability is expected to be greater than at higher concentrations.

Manual Methods (General). To make valid comparisons of the precision and accuracy data, such comparisons should be made at the same concentration levels. Only then will it be possible to determine whether the larger variabilities of the precision estimates are due to differences in concentration level or to the larger scope of the measurement system involved.

Such comparison studies can be accomplished when the raw concentration data are obtained from the State and local agencies for each sample day as specified by the proposed regulation revisions to Appendix A of 40 CFR, Part 58. Now only the reporting organizations could perform such studies since they have the raw data available.

The estimation of the magnitude of the contributions of the various sources of variability to the total measurement processes could be systematically studied in specially designed experiments.

CO, SO_2, NO_2, O_3 (Continuous Methods). For these continuous measurement methods, the precision assessments reflect the within-instrument variability obtained from bi-weekly checks at relatively low concentrations, namely

8 - 10 ppm for CO
and .08 -.10 ppm for SO_2, NO_2, and O_3.

In comparison, the accuracy audits include between-instrument variability as well as imprecision, but are conducted at higher concentrations for levels 2 and 3.

Level 2	15 - 20 ppm for CO .15 -.20 ppm for SO_2, NO_2, and O_3.
Level 3	35 - 45 ppm for CO .35 -.45 ppm for SO_2, NO_2, and O_3.

Level 1 accuracy audits are conducted at concentrations of

.03 -.08 for CO
3 - 8 for SO_2, NO_2, and O_3.

At Level 1, concentrations less than those for the precision checks, the probability limits for accuracy are wider than for precision.

COMPARISON OF NATIONAL LIMIT VALUES AND 50-PERCENTILE VALUES

With reference again to Table 12, in all cases the spreads (ranges) of the National Average values for both precision and accuracy are greater than for the corresponding 50-Percentile values. The most logical explanation is that the National average values are unduly influenced by extreme values. If the distributions of the upper probability limits and the lower probability limits were near normal, as they should be, the 50-Percentile values should closely agree with the National average values.

An evaluation of the shape of the distributions does in fact show that the distributions are not normal due to an excessive number of extreme values (i.e., values in the tails of the distribution).

All of the distributions of the upper and lower probability limits are generally symmetric about zero. The only exception is for the SO_2 continuous method, for both precision and accuracy. For precision checks, the distribution of the lower probability limits is biased from 5 to 7 percent on the negative. A similar observation was made for 1981 and 1982 data. This means that, on the average, the precision checks resulted in values about 5 percent less than the assumed concentrations. No solid explanation can be stated for this trend. One possible explanation is that the relatively low concentrations of SO_2 (0.08 0.10 ppm) in cylinders specially prepared for precision checks may degrade after preparation. For accuracy audits, the negative bias is from 3 to 5 percent. This means that on the average, the results of the accuracy audits were from 3 to 5 percent less than the assessed concentrations of the audit gases. Again, it may be possible that this bias represents a degradation of the SO_2 audit gases. These biases for SO_2 were observed previously in the 1981 data and seem to be consistent in magnitude and direction. Another explanation of the negative biases for precision and accuracy for SO_2 is that the instruments, on the average, tend to drift in a negative direction as previously discussed on page 9. No satisfactory explanation can be provided at this time. However, this consistent bias should be investigated and corrected, if possible.

A review of Table 8 clearly shows the large variability of precision data for the manual methods and, in particular, the presence of many extreme values for the SO_2 and NO_2 methods. Table 8 and Figure 2 show more variability of the accuracy audit results from the continuous SO_2 and NO_2 methods than for CO and O_3.

Based on the frequency distributions of Table 8, quarterly probability limit values which exceed those listed in Table 13 should be considered excessive or outlier values and should initiate immediate investigation to determine and, hopefully, correct the cause of such excessive values. The values given in Table 13 are slightly tighter in some cases than the corresponding values given in the report for the 1982 data.

TABLE 13. VALUES OF QUARTERLY PROBABILITY LIMITS CONSIDERED AS EXCESSIVE BASED ON 1983 DATA

	Precision limits	Accuracy limits Level 1	Level 2	Level 3
Manual methods				
TSP	± 28	—	± 16	—
Pb	± 42	± 20	± 16	—
NO_2	± 58	± 22	± 16	± 15
SO_2	± 70	± 28	± 25	± 20
Continuous methods				
CO	± 16	± 28	± 18	± 15
O_3	± 20	± 28	± 20	± 19
NO_2	± 28	± 50	± 29	± 23
SO_2	± 23	± 33	± 27	± 25

SECTION 6

COMPARISON OF RESULTS FROM THE PARS AND THE PERFORMANCE AUDIT PROGRAM

A general comparison between the accuracy data of the PARS program and the Performance Audit (PA) data is included in this report. The audit data are the results of an independent check, the National Performance Audit Program (NPAP), conducted by the Quality Assurance Division (QAD) of the EMSL.

In the NPAP, specially prepared samples or devices are sent from EMSL to the ambient air monitoring agencies. The samples or devices are carefully and accurately assessed by EMSL utilizing NBS Standard Reference Materials (SRM's) or standards. The monitoring agencies analyze or measure the samples or devices as unknowns or blinds and report their results to EMSL for evaluation. Audit programs are conducted for the following pollutant measurements using the materials indicated:

Measurement	Audit materials	Portion of measurement system audited
SO_2 (manual)	Freeze-dried sodium sulfite	Chemical analytical
NO_2 (manual)	Aqueous sodium nitrite	Chemical analytical
Pb	Filter strip with lead nitrate	Chemical analytical
TSP	Reference flow device	Flow
CO	Cylinders containing CO gas	Continuous instrument
SO_2	Cylinder containing SO_2 gas	Continuous instrument

The audit materials or devices are prepared at three to six different concentrations or flow levels. Separate reports on the evaluation of the PA data are published by EMSL.[4,5,6]

As indicated above, the NPAP does not yet include an audit for the ozone or continuous NO_2 methods. Therefore, no comparisons of the NPAP or PA data with the PARS data are possible for these measurements.

Since precision assessments are not made in the PA program, only accuracy can be compared across the PARS and the PA programs. For the purpose of this report, the results from PARS and the PA system are compared at approximately the same levels by matching laboratories and reporting organizations. Since the PARS data are presented with outliers, the same approach was taken with the audit data. Knowledge of the historical audit data reports, however, indicates that the presence of outliers may make a significant difference in the audit results for some agencies.

Comparisons of the national values of the probability limits (Table 14) exhibit good agreement between the results of the two programs. However, there is considerable variation between the results of the two programs when comparisons are made on Regional and reporting organization bases. Lack of better agreement results from several factors. First, the inclusion of outlier values in the PA data appears to have introduced some excessive distortion of general trends. Second, even though the PARS averages in Table 14 are weighted by the number of audits, variations due to many sources of error for both data sets are averaged together to obtain the national values, thereby masking any correlations which may have existed for the results of individual agencies. Third, the concentration levels for the two systems do not coincide exactly at each of the audit levels. Fourth, the PA data are the results of independent external audits, while the PARS accuracy data are based on the results of independent internal audits. The expected effects of the last-mentioned factor would cause the spread of the limits for the PA to be wider than that for the PARS. Examination of the results (see Table 14) confirm these expectations.

TABLE 14. SUMMARY COMPARISON OF EMSL PERFORMANCE AUDITS (PA) vs. PARS ACCURACY AUDIT DATA FOR YEAR 1983

		National values probability limits (%)[a]							
		Level 1		Level 2		Level 3		Level 4	
Pollutant	Audits	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
CO									
PA	1753	-23	+21	-10	+13	-14	+16		
PARS	(1228)	(-15)	(+13)	(- 8)	(+ 8)	(- 7)	(+ 6)	(- 4)	(+ 3)
NO$_2$ (manual)									
PA	78			-15	+ 7	- 9	+ 7		
PARS	(248)	(- 9)	(+12)	(- 8)	(+10)	(- 7)	(+ 8)		
SO$_2$ (manual)									
PA	59	-45	+43	-15	+19	-13	+19	- 8	+12
PARS	(184)	(-26)	(+15)	(-18)	(+11)	(-14)	(+ 7)		
LEAD									
PA	644	-24	+23	-25	+22	-20	+19		
PARS	(1097)	(-12)	(+12)	(-10)	(+ 9)				
TSP									
PA	2700			-11	+10				
PARS	(5996)			(- 7)	(+ 7)				
SO$_2$ (Cont)									
PA	506	-26	+23	-20	+18	-18	+15	- 6	+ 6
PARS	(1281)	(-18)	(+17)	(-12)	(+13)	(-12)	(+12)	(- 8)	(+ 8)

[a]NOTE: The national probability limits for both PA and the PARS shown in the table have been calculated by the procedure given in Appendix B, to enable an equitable comparison to be made. Therefore, the values for PARS do not agree with the values of Tables 6 and 7 and the figures previously presented.

Comparisons of the PA and the PARS results by Region are shown in Figures 11a through f. The figures show considerable variation among Regions.

CO.

For a given Region the width of the probability limits is nearly the same for PA and PARS, except for Region II, where PARS is less than PA; Region VIII, where PARS is less than PA; and Region III, where PARS is greater than PA.

Region VI probability limits for both PA and PARS are considerably wider than for other regions. Region VIII's PA limits are wider than all other regions except for Region VI.

TSP.

The width of the probability limits for PARS is, for all Regions except VII, less than for PA. This may be explained by the fact that within each reporting organization the flow rate checks are not as completely independent from their internal standards as are the PA audits. Regions II and IX have more variability than other Regions.

NO_2 (manual).

The wide variability of the PA for Region IV needs explanation. Also, for Region VI the considerable difference in PA and PARS limits should somehow be explained.

SO_2 (manual).

For PA results there is a definite negative bias for both Regions IV and V. This bias does not exist for PARS. A possible explanation is that for PA the samples are prepared at EMSL/RTP and some degradation of the samples occurs prior to analysis is the SLAMS laboratories. For PARS the standards are prepared locally and analyzed soon after preparation.

Pb.

There is considerable variation in the results from Region to Region. However, for all Regions, the PARS variability is considerably less than for PA. This may be explained by the fact that the local independently-prepared standards for PARS have close traceability to the materials used for calibration, whereas the standards for PA, since they are prepared at EMSL/RTP, are more completely independent. There appears to be no significant bias in either the PA or the PARS results.

Regions III, IV, and V PA results have much more variability than for other regions.

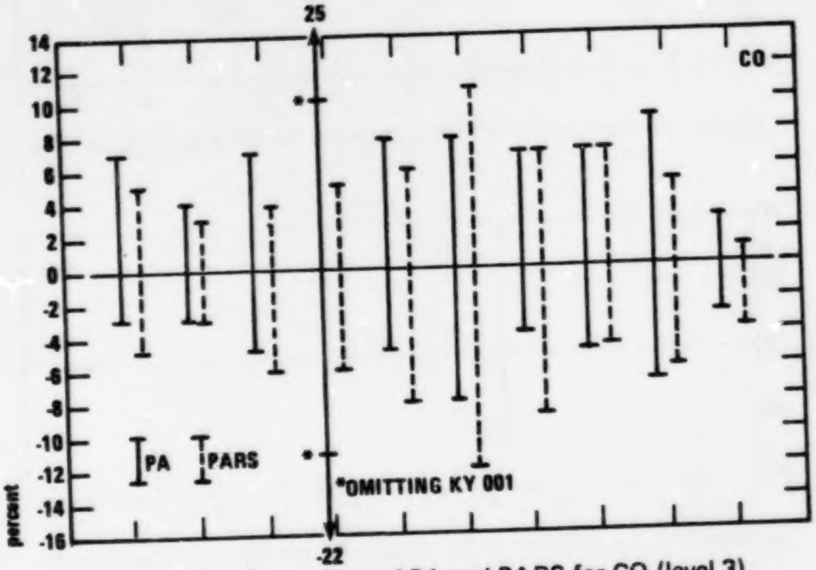

Figure 11a. Comparison of PA and PARS for CO (level 3).

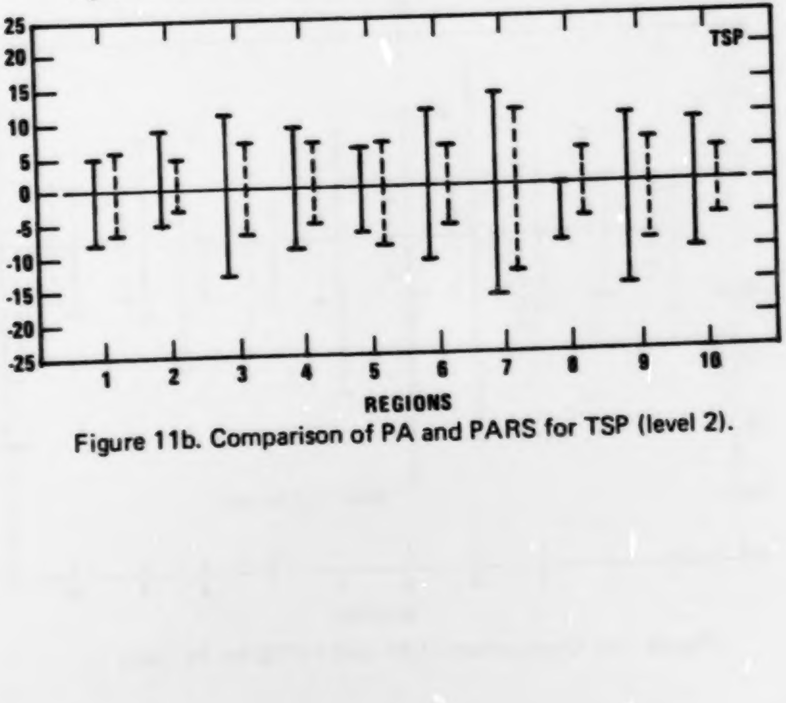

Figure 11b. Comparison of PA and PARS for TSP (level 2).

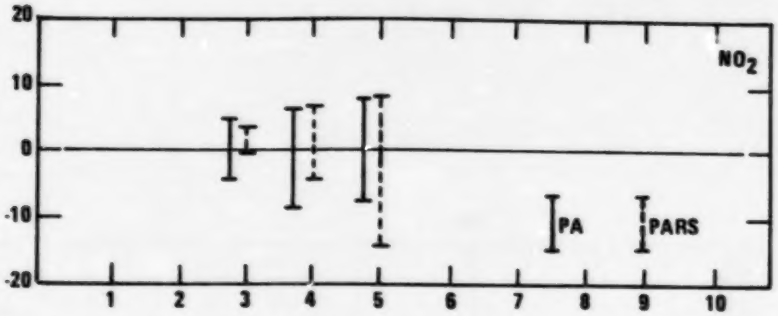

Figure 11c. Comparison of PA and PARS for manual NO_2(level 3).

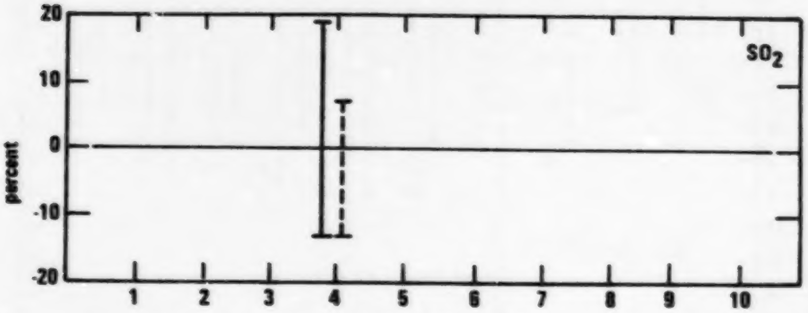

Figure 11d. Comparison of PA and PARS for manual SO_2(level 3).

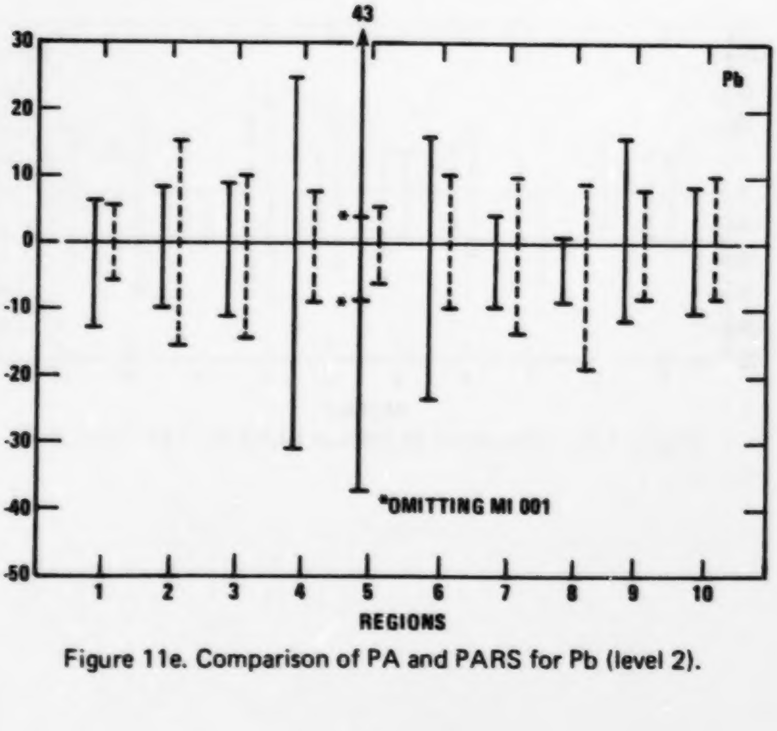

Figure 11e. Comparison of PA and PARS for Pb (level 2).

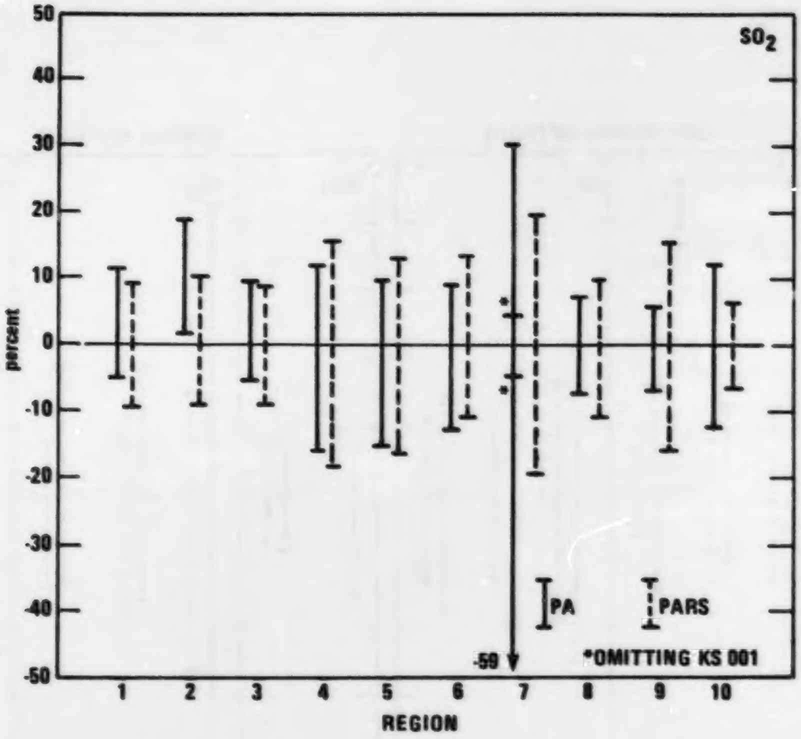

Figure 11f. Comparison of PA and PARS for continuous SO$_2$ (level 3).

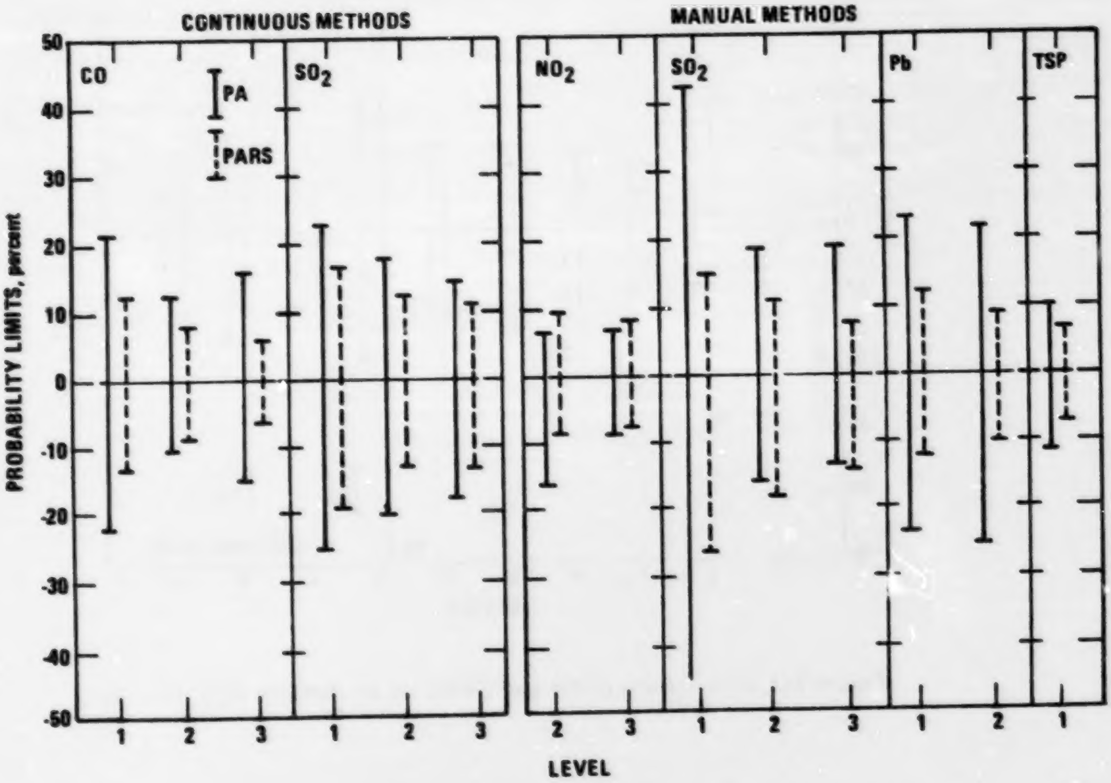

Figure 12. Comparison of PA and PARS, national values, 1983.

SO_2 (Continuous).

Regions IV and VI show considerably more variation of PA results than other Regions. Region IV PA results are wider due to the results from laboratories in two particular reporting organizations in the Region. The PARS data show nearly the same variability across Regions except for Region I which has less variability.

All Regions, except II and III, show a slight negative bias for both PA and PARS data, similar to the negative biases for the manual SO_2 method.

Missing PA and PARS Comparisons

Comparsion of the results from PARS and PA are, of course, possible only when the data are available from both systems for paired reporting organization-laboratory combinations. Paired data were not available for 67 comparisons. Of these, data was not available because of missing data from the PARS for 15 comparisons.

Region	State	Reporting organization	Pollutant
II	VI	55001	TSP
IV	AL	01011	CO, Pb
	AL	01013	CO, Pb
V	IN	15002	CO
VI	LA	19001	Pb
VII	IA	16002	NO_2 (manual)
	MO	26003	Pb
IX	CA	05036	Pb
	NV	29100	CO, TSP
	GU	54100	TSP
X	AK	02020	Pb

Lack of laboratory participation in the National Performance Audit Program was the reason for no available paired data for 52 cases. In these cases, the laboratories (reporting organization) did not comply with the requirements of the federal regulations. In some of these cases, the laboratory requested the audit samples but did not report any results.

Region	State	Reporting organization	Laboratory	Pollutant
I	ME	20001	301001	Pb
	MA	22001	304001	TSP
II	NJ	31001	308001	Pb
	PR	40001	309001	Pb
	VI	55001	310001	TSP
III	DC	09001	312100	CO, TSP, Pb*
	MD	21001	312001	CO, Pb*
	PA	39001	311002	TSP
	VA	48005	415001	TSP
	WV	50002	314002	CO
IV	AL	01011	319001	CO
	AL	01013	419001	TSP
	FL	10001	323005	CO
	FL	10003	323004	CO
	KY	18002	416001	TSP
V	IN	15010	429011	TSP
	MI	23001	326001	TSP
	MI	23002	426001	TSP
	OH	36001	327001	TSP
	OH	36006	427001	Pb
	OH	36008	427003	Pb*
	OH	36009	427004	Pb
	OH	36010	427005	Pb
VI	LA	19001	334001	Pb
	NM	32002	430001	Pb, TSP
	OK	37102	431001	CO
	OK	37103	431002	TSP
	TX	45001	333001	Pb
	TX	45004	433004	TSP
	TX	45006	433008	TSP
VII	MO	26001	338001	Pb**
	MO	26003	438003	Pb, TSP
	MO	26005	438005	CO, TSP
VIII	CO	06001	344001	Pb, TSP
	MT	27001	339002	TSP
	MT	27002	439001	TSP
	MT	27003	439002	TSP
	MT	27004	439003	CO,* TSP
	ND	35001	341001	TSP
	SD	43001	342001	TSP
	WY	52001	343001	TSP
IX	CA	05036	445005	Pb, TSP
	HI	12120	348001	CO,* SO_2* (manual)

Continued

Region	State	Reporting organization	Laboratory	Pollutant
IX	NV	29100	346001	CO,* TSP
	NV	29300	446002	TSP
	GU	54100	349001	TSP
X	ID	13001	554004	CO**
	ID	13001	354001	TSP
	ID	13001	554003	Pb*

*Requested audit samples, but reported no results.

**Requested audit samples twice, but reported no results.

In several cases, data were unavailable from both PARS and PA:

Region	State	Reporting Organization	Laboratory	Pollutant
II	VI	55001	310001	TSP
IV	AL	01011	319001	CO
VI	LA	19001	334001	Pb
VII	MO	26003	438003	Pb
IX	CA	05036	445005	Pb, TSP
	NV	29100	346001	CO, TSP
	GU	54100	349001	TSP

SECTION 7

CONCLUSIONS AND RECOMMENDATIONS

The results of PARS data for 1983 indicate some general improvement over the data for 1982. However, considerable differences exist among Regions and individual reporting organizations for most measurement methods. Investigations should be made by the Regions and the states to determine the causes of these significant differences.

Comparison of PARS and PA data show more variability of the PA data than for PARS. These differences are presumably due to the fact that the external PA accuracy audits are more completely independent than the internal PARS accuracy audits. These differences have been consistent for the years 1981, 1982, and 1983.

Further improvement in the data quality assessments, which are measures of the monitoring data quality, can be achieved only through continuing efforts of State and local agency personnel involved (first-hand) with the operation and quality control of their measurement systems. Regional QA Coordinators can also assist through their review of the operations and quality control practices across the States in their Regions.

Each Regional QA Coordinator should evaluate the PARS data from all the reporting organizations within his Region to identify those organizations having excessively large variations of probability limits. Investigation should be made to determine the causes and correct them to preclude future excessive deviations. Similarly, Regional QA Coordinators should review the operations of the reporting organizations having significantly better precision and accuracy results in order to identify specific procedures which should be uniformly used throughout the Region and the Nation to further improve the reliability of the monitoring data in the National Aerometric Data Base.

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APPENDIX A

GLOSSARY

State and Local Air Monitoring Stations (SLAMS) -- monitoring stations selected by the states and included in the State Implementation Plans. The stations and the plans are approved by the Regional Administrator. The purposes of the monitoring are to determine compliance to the National Ambient Air Quality Standards (NAAQS) and to determine background levels of the criteria pollutants.

National Air Monitoring Sites (NAMS) -- a subset of the SLAMS, selected by the states in collaboration with the Regional Offices and approved by the Administrator. The purpose of the sites is to monitor in the areas where pollution concentration and population exposure are expected to be highest in terms of the NAAQS. Although, in actuality the NAMS are a subset of SLAMS, the NAMS sites and the non-NAMS SLAMS sites are often referred to as two separate groups, the NAMS and SLAMS sites, respectively.

Reporting Organization -- a state, or subordinate organization within the state that is responsible for a set of SLAMS stations, monitoring for the same pollutant and for which PARS data can be logically pooled (statistically combined). It is important to emphasize that a reporting organization is pollutant- and site-specific and is responsible for the sampling, calibration, analysis, data quality assessment, and reporting of the monitoring data for the specific pollutant. It is possible that a particular SLAMS station may belong to two different reporting organizations, but the likelihood of this occurring is small.

Precision (Continuous Analyzers) -- a measure of repeatability obtained from actual concentration in a gas cylinder and the values indicated by the analyzer. For SO_2, NO_2, and O_3 analyzers the gas concentration used for the precision check must be between 0.08 and 0.10 ppm and for CO it must be between 8 and 10 ppm. The data from all biweekly analyzer checks for a given pollutant are combined and 95% probability limit values reported to EPA each quarter by each reporting organization. For this report, the quarterly values for 1983 were combined and overall 95% probability limits were calculated for each reporting organization, for each Region, and for the nation, as described in Appendix B.

Precision (Manual Methods) -- a measure of repeatability for TSP, NO_2, and SO_2 manual methods (bubblers) determined by operating collocated samplers at selected sites. At each collocated site one sampler is designated as the "actual" sampler and the other as the "check" sampler, and the difference between the two samplers provides the precision estimate. For Pb, precision

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estimates are obtained by analyzing duplicate strips from a high volume filter sample collected at a site where high Pb concentrations exist. These precision checks are made weekly and reported quarterly. The data from the manual methods were calculated in a similar manner as the automated (continuous) analyzers.

Accuracy (Continuous Analyzers) -- the agreement between an analyzer result and a known audit concentration. Accuracy estimates are obtained at least once per year for each analyzer by introducing blind audit materials into the analyzer. The audit samples must span at least three concentration levels and, whenever possible, must be traceable to NBS or other authoritative reference. At least 25% of the analyzers in each reporting organization must be audited each quarter. The percentage difference for each audit concentration is determined and the average for all analyzers checked within that quarter is calculated for each level. The standard deviation for each level is then used to calculate the 95% probability limits for the reporting organization which in turn are submitted quarterly to EPA. These quarterly values were combined to determine the annual values presented here. They were calculated in the same manner as described earlier for precision.

Accuracy (Manual Methods) -- the agreement between an observed value and a known or reference value. For NO_2 and SO_2 manual methods, the accuracy of the analytical portion of the method is assessed at three levels by the analysis of known audit materials. For Pb, the accuracy of the analytical portion of the method is assessed at two levels. For TSP, the flow rate (or air volume) portion of the method is assessed at the nominal flow rate.

Completeness -- the number of the precision and accuracy checks reported as compared to the number that should have been reported if all checks had been done in accordance with the regulations. This value, expressed as a percentage, is not corrected for instances where equipment failure prevented conducting the check, or for periods when monitoring data were invalidated.

National Ambient Air Audit Program (NAAAP) -- an external performance audit program conducted by EPA on state and local agency organizatons. Organizations operating SLAMS stations are required to participate in this program directed by the Environmental Monitoring Systems Laboratory (EMSL) of the EPA at Research Triangle Park, NC. In this program, blind audit materials prepared by EMSL are sent to participating laboratories. The laboratories analyze the samples and return the results to EMSL. Shortly after the audit is completed each participant receives a report that compares his performance to that of all other participants. The use of audit materials for the manual SO_2 audits (freeze-dried $SO_3^=$), manual NO_2 audits ($NaNO_2$ solution), and particulate $SO_4^=$, NO_3^-, and Pb audits (spiked filter strips) evaluates only the analytical proficiency of the laboratory. The reference flow device used in the TSP sampler audit evaluates only the accuracy of the flow calibration. However, the CO and SO_2 continuous analyzer audits evaluate the entire measurement system. As explained above, the external NAAAP audits are conducted in essentially the same manner as the internal audits (accuracy checks) for the PARS program. The audits for the manual methods and CO analyzer are conducted semiannually and those for flow (TSP) and continuous SO_2 monitors are conducted once per year.

APPENDIX B

FORMULAS FOR COMBINING PROBABILITY LIMITS

When combining the probability limits for individual calendar quarters to compute the yearly probability limits for a given reporting organization, the following formulas are used. These formulas determine the yearly probability limits for the reporting organization which would have been computed from all the individual percent difference values, d_i, obtained during the year. To accomplish this, from each quarterly pair of probability limits, the average, $\bar{D}$, and standard deviation, S_a, are back-calculated:

$$\bar{D} = \frac{LL + UL}{2}$$

$$S_a = \frac{UL - LL}{2(1.96)}$$

where LL = lower probability limit
UL = upper probability limit

Except for the effect of the round-off of the reported probability limits to integer values, the above equations determine the original $\bar{D}$ and S_a values used by the reporting organizations to compute the originally reported limits.

Yearly average, D, and standard deivation, S, values are computed from the quarterly values as follows:

$$\bar{\bar{D}} = \frac{\sum n_i \bar{D}_i}{\sum n_i}$$

where n_i = the number of individual percent difference, d_i, values for each quarter

$$S = \sqrt{\frac{\sum (n_i - 1) S_i^2 + \sum n_i (\bar{D}_i - \bar{\bar{D}})^2}{(\sum n_i) - 1}}$$

The appropriate yearly probability limits for the reporting organization are computed using the formulas:

$$UL = \bar{\bar{D}} + 1.96\ \bar{S}$$

$$LL = \bar{\bar{D}} - 1.96\ \bar{S}$$

NOTE: The same formulas are used for combining yearly reporting organization limits into state limits, state limits into region limits, and region limits into national limits.

Example: Suppose that the lower and upper 95% probability limits for CO for precision for the four quarters of a year are:

Quarter	Number of Precision Checks	Lower Probability Limit	Upper Probability Limit
1	10	-8	+6
2	9	-5	+9
3	13	-6	+4
4	7	-12	+11

For Quarter 1:

$$D = \frac{LL + UL}{2} = \frac{-8+6}{2} = -1$$

$$\bar{S} = \frac{6-(-8)}{2(1.96)} = 3.6$$

Similar computations for the other quarters, give values in the following table.

Quarter	n	$\bar{D}$	S	$\bar{D} - D$
1	10	-1	3.6	-0.78
2	9	+2	3.6	2.22
3	13	-1	2.6	-0.78
4	7	-0.5	5.9	-0.28
	39			

Then

$$\bar{\bar{D}} = \frac{\sum n_i D_i}{\sum n_i}$$

$$= \frac{10(-1) + 9(2) + 13(-1) + 7(-0.5)}{39}$$

$$= \frac{-8.5}{39} = -0.22$$

$$\bar{S} = \sqrt{\frac{\sum(n_i-1)\ S_i^2 + \sum n_i(D_i-D)^2}{(\sum n_i) - 1}}$$

$$= \sqrt{\frac{9(3.6)^2+8(3.6)^2+12(2.6)^2+6(5.9)^2+10(-0.78)^2+9(2.22)^2+13(-0.78)^2+7(-0.28)^2}{39 - 1}}$$

$$= \sqrt{\frac{510.30 + 58.90}{38}}$$

$$= \sqrt{14.98} = 3.87$$

The upper and lower 95% probability limits are then computed as:

$$UL = \bar{\bar{D}} + 1.96\ S$$

$$= -0.22 + 1.96(3.87)$$

$= 7.37$ or 7 rounded off to nearest integer

$$LL = \bar{\bar{D}} - 1.96\ S$$

$$= -0.22 - 1.96(3.87)$$

$= -7.81$ or -8 rounded off to nearest integer

APPENDIX C

LISTING OF REPORTING ORGANIZATIONS

	State		Reporting Organization	
Region	No.	Name	No.	Name
01	07	CONNECTICUT	001	AIR MONIT. SEC. DEPT. OF ENV. PROTECT.
01	20	MAINE	001	BUREAU OF A. Q. C. DEPT. OF ENV. PROTECT
01	22	MASSACHUSETTS	001	DIV. OF A. Q. C. DEPT. OF ENV. QUAL. ENG
01	30	NEW HAMPSHIRE	001	AIR RESOURCES AGENCY
01	41	RHODE ISLAND	001	DIV. OF A. HAZ. MAT. DEPT OF ENV. MANAGE.
01	47	VERMONT	001	AIR & SOLID WASTE PROGRAMS
02	31	NEW JERSEY	001	DEPT. OF ENV.PROT., DIV. OF ENV. QUAL.
02	33	NEW YORK	001	DEPT. OF ENV. CONSERV. DIV. OF AIR
02	40	PUERTO RICO	001	ENVIRONMENTAL QUALITY BOARD.
02	55	VIRGIN ISLANDS	001	DEPT. OF CONS. AND CULTURAL AFFAIRS
03	08	DELAWARE	001	STATE OF DELAWARE DNR & EC
03	09	DISTRICT OF COLUMBIA	001	WASHINGTON, DC DC & RA
03	21	MARYLAND	001	STATE OF MARYLAND
03	21	MARYLAND	002	ALLEGANY COUNTY
03	21	MARYLAND	003	ANNE ARUNDEL COUNTY
03	21	MARYLAND	005	BALTIMORE COUNTY
03	21	MARYLAND	006	PRINCE GEORGE'S COUNTY
03	39	PENNSYLVANIA	001	PENNSYLVANIA DER
03	39	PENNSYLVANIA	002	ALLEGHENY CO. BAPC
03	39	PENNSYLVANIA	003	PHILADELPHIA AMS
03	48	VIRGINIA	001	VIRGINIA STATE AIR POLL. CONTROL BOARD
03	48	VIRGINIA	002	CITY OF ALEXANDRIA
03	48	VIRGINIA	003	FAIRFAX COUNTY
03	48	VIRGINIA	005	ROANOKE COUNTY
03	50	WEST VIRGINIA	001	STATE OF WEST VIRGINIA
03	50	WEST VIRGINIA	002	WVA NORTHERN PANHANDLE REGIONAL OFFICE
03	01	ALABAMA	011	ALABAMA DEPT OF ENVIRONMENTAL MANAGEMENT
04	01	ALABAMA	012	AL, JEFFERSON CNTY BUREAU OF ENV. HEALTH
04	01	ALABAMA	013	ALABAMA DEPT. OF ENV. MANAGEMENT MOBILE
04	01	ALABAMA	014	AL, HUNTSVILLE AIR POLL. CONTROL DEPT.
04	01	ALABAMA	015	AL, TRICOUNTY DIV. OF AIR POLL. CONTROL
04	01	ALABAMA	016	TENNESSEE VALLEY AUTHORITY - ALABAMA
04	10	FLORIDA	001	FDER, NORTHWEST DISTRICT
04	10	FLORIDA	002	FDER, NORTHEAST DISTRICT
04	10	FLORIDA	003	FDER, ST. JOHNS RIVER DISTRICT
04	10	FLORIDA	004	FDER, SOUTHWEST DISTRICT
04	10	FLORIDA	005	FDER, SOUTH FLORIDA DISTRICT
04	10	FLORIDA	006	FDER, SOUTHEAST FLORIDA DISTRICT
04	10	FLORIDA	007	FDER, NORTHEAST DISTRICT BRANCH OFFICE
04	10	FLORIDA	011	FL, JACKSONVILLE BIO-ENV. SERVICES DIV.
04	10	FLORIDA	012	FL, HILLSBOROUGH CO., ENV. SERVICES DIV.
04	10	FLORIDA	013	FL, PINELLAS CO. DEPT OF ENV. MANAGEMENT

	State		Reporting Organization	
Region	No.	Name	No.	Name
04	10	FLORIDA	014	FL, MANATEE COUNTY HEALTH DEPARTMENT
04	10	FLORIDA	015	FL, SARASOTA CO. AIR POLL. CONTROL DIV.
04	10	FLORIDA	016	FL, PALM BEACH COUNTY HEALTH DEPARTMENT
04	10	FLORIDA	017	FL, BROWARD CO. ENV. QUAL. CONTROL BOARD
04	10	FLORIDA	018	FL, DADE CO. DEPT OF ENV. RESOURCES MGMT
04	11	GEORGIA	010	GEORGIA AIR QUAL. EVALUATION SECTION EPD
04	18	KENTUCKY	001	KENTUCKY DIV. OF AIR POLL. CONTROL
04	18	KENTUCKY	002	KY, JEFFERSON CO. AIR POLL. CONTROL DIST.
04	18	KENTUCKY	003	TENNESSEE VALLEY AUTHORITY - KENTUCKY
04	25	MISSISSIPPI	100	MISSISSIPPI BUREAU OF POLLUTION CONTROL
04	34	NORTH CAROLINA	001	NC NATURAL RESOURCES & COMMUNITY DEVEL.
04	34	NORTH CAROLINA	002	NC, FORSYTH COUNTY ENV. AFFAIRS DEPT.
04	34	NORTH CAROLINA	003	NC, MECKLENBURG CO. DEPT. OF ENV. HEALTH
04	34	NORTH CAROLINA	004	NC, WESTERN REGIONAL AIR POLL. CONTROL
04	42	SOUTH CAROLINA	001	SC DEPARTMENT OF HEALTH & ENV. CONTROL
04	44	TENNESSEE	001	TENNESSEE DIV. OF AIR POLL. CONTROL
04	44	TENNESSEE	002	TN, MEMPHIS-SHELBY CO. HEALTH DEPARTMENT
04	44	TENNESSEE	003	METRO HEALTH DEPT NASHVILLE-DAVIDSON CO.
04	44	TENNESSEE	004	TN, KNOX COUNTY DEPT. OF AIR POLL. CONTROL
04	44	TENNESSEE	005	TN, CHATTANOOGA-HAMILTON CO. AIR POLL. CONT.
04	44	TENNESSEE	006	TENNESSEE VALLEY AUTHORITY - TENNESSEE
05	14	ILLINOIS	001	DIV. OF AIR POLL. CONT., ILLINOIS EPA
05	14	ILLINOIS	002	CHICAGO DEPT. OF CONSUMER SERVICES
05	14	ILLINOIS	003	COOK COUNTY DEPT. OF ENVIRONMENTAL CONT.
05	15	INDIANA	001	AIR POLL. CONT. DIV. INDIANA STATE
05	15	INDIANA	002	DIV. OF AIR POLL. CONT., EVANSVILLE
05	15	INDIANA	003	ST. JOSEPH COUNTY
05	15	INDIANA	005	AIR POLL. CONT. DIV., VIGO COUNTY
05	15	INDIANA	008	INDIANAPOLIS APC DIVISION
05	15	INDIANA	009	ANDERSON LOCAL AGENCY
05	15	INDIANA	010	PORTER COUNTY HEALTH DEPARTMENT
05	15	INDIANA	100	LAKE COUNTY CONSOLDTD A Q MONIT WRK GRP
05	23	MICHIGAN	001	AIR QUAL. DIV., MI. DEPT. OF NAT. RES.
05	23	MICHIGAN	002	AIR POLL. CONT. DIV., WAYNE COUNTY
05	24	MINNESOTA	001	MINNESOTA POLL. CONT. AGENCY, AIR MO
05	36	OHIO	001	OHIO EPA, CENTRAL DIST. OFFICE
05	36	OHIO	002	OHIO EPA, NORTHEAST DIST. OFFICE
05	36	OHIO	003	OHIO EPA, NORTHWEST DIST. OFFICE
05	36	OHIO	004	OHIO EPA, SOUTHEAST DIST. OFFICE
05	36	OHIO	005	OHIO EPA, SOUTHWEST DIST. OFFICE
05	36	OHIO	006	AKRON AIR POLL. CONTROL
05	36	OHIO	007	AIR POLL. CONT. DIV., CANTON CITY
05	36	OHIO	008	SOUTHWESTERN OHIO AIR POLL. AGENCY
05	36	OHIO	009	CLEVELAND DIV. OF AIR POLL. AGENCY
05	36	OHIO	010	REGIONAL APC AGENCY, DAYTON
05	36	OHIO	012	AIR POLL. CONT. DIV. OF LAKE CNTY.
05	36	OHIO	013	AIR POLL. UNIT, PORTSMOUTH CITY
05	36	OHIO	014	NORTH OHIO VALLEY AIR AUTHORITY

Region	State		Reporting Organization	
	No.	Name	No.	Name
05	36	OHIO	015	TOLEDO POLL. CONTROL AGENCY
05	36	OHIO	016	MAHONING TRUMBULL AIR POLL. CONTROL
05	51	WISCONSIN	001	WI. DEPT. OF NAT. RES., AIR MONIT. UNIT
06	04	ARKANSAS	001	DEPT. OF POLL. CONT. & ECOLOGY CONT. MON
06	04	ARKANSAS	002	DEPT. OF POLL. CONT. & ECOLOGY
06	19	LOUISIANA	001	DEPT. OF NATURAL RESOURCES, NEW ORLEANS
06	32	NEW MEXICO	001	ENV. IMPROVEMENT DIV., SANTA FE
06	32	NEW MEXICO	002	CITY OF ALBUQUERQUE ENV. HEALTH DIV.
06	37	OKLAHOMA	101	OK STATE DEPT. OF HEALTH
06	37	OKLAHOMA	102	OKLAHOMA CITY-CNTY. HEALTH DEPT.
06	37	OKLAHOMA	103	TULSA CITY-CNTY. HEALTH DEPT.
06	45	TEXAS	001	TEXAS AIR CONTROL BOARD
06	45	TEXAS	002	DALLAS ENV. HEALTH & CONSERVATION DEPT.
06	45	TEXAS	003	EL PASO CITY-CNTY. HEALTH DEPT.
06	45	TEXAS	004	FT. WORTH PUBLIC HEALTH DEPT.
06	45	TEXAS	005	GALVESTON COUNTY HEALTH DISTRICT
06	45	TEXAS	006	HOUSTON DEPT. OF PUBLIC HEALTH
06	45	TEXAS	007	SAN ANTONIO METRO. HEALTH DISTRICT
07	16	IOWA	001	POLK COUNTY PHYSICAL PLANNING
07	16	IOWA	002	LINN COUNTY HEALTH DEPARTMENT
07	16	IOWA	003	UNIVERSITY HYGIENIC LABORATORY
07	17	KANSAS	001	STATE OF KANSAS
07	26	MISSOURI	001	LABORATORY SERVICES PROGRAM
07	26	MISSOURI	002	ST. LOUIS COUNTY
07	26	MISSOURI	003	ST. LOUIS CITY
07	26	MISSOURI	004	KANSAS CITY
07	26	MISSOURI	005	SPRINGFIELD
07	28	NEBRASKA	001	STATE OF NEBRASKA
07	28	NEBRASKA	002	LINCOLN
07	28	NEBRASKA	003	OMAHA
08	06	COLORADO	001	DEPARTMENT OF HEALTH
08	27	MONTANA	001	MT AIR QUAL. BUREAU, DEPT. OF H&ENV.
08	27	MONTANA	002	YELLOWSTONE CNTY. AIR POLL. CONT. AGENCY
08	27	MONTANA	003	GREAT FALLS CITY-CNTY. HEALTH DEPT.
08	27	MONTANA	004	MISSOULA CITY-CNTY HEALTH DEPT.
08	35	NORTH DAKOTA	001	STATE DEPARTMENT OF HEALTH
08	43	SOUTH DAKOTA	001	DEPT. OF HEALTH, DIV. OF ENV. HEALTH
08	46	UTAH	001	STATE BUREAU OF AIR QUALITY
08	52	WYOMING	001	DEPT. OF ENV. QUAL., AIR QUAL DIV
09	03	ARIZONA	100	ARIZONA DEPT. OF HEALTH SERVICES
09	03	ARIZONA	200	MARICOPA COUNTY
09	03	ARIZONA	300	PIMA COUNTY
09	05	CALIFORNIA	001	CALIFORNIA AIR RESOURCES BOARD
09	05	CALIFORNIA	004	BAY AREA AIR QUAL. MANAGEMENT DISTRICT
09	05	CALIFORNIA	036	SAN DIEGO AIR POLL. CONTROL DISTRICT
09	05	CALIFORNIA	061	SOUTH COAST AIR QUAL. MANAGEMENT DIST.
09	12	HAWAII	120	STATE OF HAWAII, DEPT. OF HEALTH
09	29	NEVADA	100	NEVADA DIV. OF ENV. PROTECTION

Region	State No.	State Name	Reporting Organizations No.	Reporting Organizations Name
09	29	NEVADA	200	WASHOE COUNTY
09	29	NEVADA	300	CLARK COUNTY
09	54	GUAM	100	GUAM EPA
10	02	ALASKA	020	DEPT. OF ENVIRONMENTAL CONSERVATION
10	13	IDAHO	001	DEPARTMENT OF HEALTH AND WELFARE
10	38	OREGON	001	DEPT. OF ENVIRONMENTAL QUALITY
10	49	WASHINGTON	001	DEPT. OF ECOLOGY

APPENDIX D

PRECISION AND ACCURACY DATA BY REPORTING ORGANIZATION

Explanation of Column Heading Abbreviations for Tables D-1, D-2, D-3, D-4 (Continuous Methods)

Column No.	Heading abbreviation	Explanation
1	REPORTING ORGAN.	Reporting organization SLAMS number
	STATE	Two letter state abbreviation
	REGION	EPA regional office number (RGO#)
2	NO. SLAMS	Number of SLAMS sites, not including NAMS
3	NO. NAMS	Number of NAMS sites
4	NO. ANAL	Number of analyzers
5	NO. PREC. CHECKS	Number of precision checks performed and reported
	PR. LIMITS	Probability limits
6	LOW	Lower probability limits
7	UP	Upper probability limits
8	NO. AUDS	Number of accuracy audits per
9	NO AUDS L4	Number of audits of level 4
	LEVEL 1	
10	LOW	Lower probability limits
11	UP	Upper probability limits
	LEVEL 2	
12	LOW	Lower probability limits
13	UP	Upper probability limits
	LEVEL 3	
14	LOW	Lower probability limits
15	UP	Upper probability limits
	LEVEL 4	
16	LOW	Lower probability limits
17	UP	Upper probability limits

TABLE D-1. CO PRECISION AND ACCURACY ANNUAL VALUES FOR REPORTING ORGANIZATIONS

			AUTOMATED ANALYZERS													
			PRECISION				ACCURACY									
									PROBABILITY LIMITS							
REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	NO. ANAL	NO. PREC. CHECKS	PR.LIMS LOW	UP	NO. AUDS	NO. AUDS L4	LEVEL 1 LOW	UP	LEVEL 2 LOW	UP	LEVEL 3 LOW	UP	LEVEL 4 LOW	UP
07001	5	0	20	128	-08	+11	6	0	-14	+13	-04	+05	-05	+03		
**CT	5	0	20	128	-08	+11	6	0	-14	+13	-04	+05	-05	+03		
20001	1	0	4	36	-04	+07	2	0	-01	+17	-06	+15	-07	+13		
**ME	1	0	4	36	-04	+07	2	0	-01	+17	-06	+15	-07	+13		
22001	4	4	32	368	-07	+09	13	0	-05	+11	-03	+08	-04	+05		
**MA	4	4	32	368	-07	+09	13	0	-05	+11	-03	+08	-04	+05		
30001	2	0	8	214	-10	+06	23	0	+00	+10	-05	+09	-06	+08		
**NH	2	0	8	214	-10	+06	23	0	+00	+10	-05	+09	-06	+08		
41001	0	2	8	170	-04	+06	8	0	-04	+03	-03	+01	-04	+01		
**RI	0	2	8	170	-04	+06	8	0	-04	+03	-03	+01	-04	+01		
47001	1	0	4	223	-05	+06	5	0	-05	+02	-03	-01	+00	+01		
**VT	1	0	4	223	-05	+06	5	0	-05	+02	-03	-01	+00	+01		
*RG01	13	6	76	1,139	-07	+08	57	0	-06	+11	-05	+08	-06	+06		
31001	9	2	41	326	-09	+08	12	0	-11	+09	-05	+11	-05	+08		
**NJ	9	2	41	326	-09	+08	12	0	-11	+09	-05	+11	-05	+08		
33001	4	7	58	444	-05	+06	77	0	-07	+10	-04	+07	-03	+03		
**NY	4	7	58	444	-05	+06	77	0	-07	+10	-04	+07	-03	+03		
40001	1	2	11	121	-09	+10	8	0	-30	+20	-21	+16	-13	+07		
**PR	1	2	11	121	-09	+10	8	0	-30	+20	-21	+16	-13	+07		
*RG02	14	11	110	891	-07	+07	97	0	-11	+12	-06	+09	-05	+05		
08001	2	0	9	57	-10	+09	8	0	-66	+06	-09	+09	-10	+07		
**DE	2	0	9	57	-10	+09	8	0	-06	+06	-09	+09	-10	+07		
09001	1	2	12	98	-07	+04	8	0	-04	+04	-04	+02	-04	+02		
**DC	1	2	12	98	-07	+04	8	0	-04	+04	-04	+02	-04	+02		
21001	5	2	28	269	-10	+09	29	0	-15	+14	-12	+08	-10	+07		
**MD	5	2	28	269	-10	+09	29	0	-15	+14	-12	+08	-10	+07		
39001	17	0	87	525	-09	+11	22	0	-13	+10	-11	+05	-09	+05		
39002	0	2	8	93	-05	+07	17	0	-10	+07	-05	+04	-05	+05		
39003	4	2	24	147	-10	+07	8	0	-09	+06	-07	+07	-07	+05		
**PA	21	4	119	765	-09	+10	47	0	-11	+08	-09	+06	-07	+05		
48001	6	2	32	223	-05	+05	8	0	-06	+05	-05	+02	-04	+01		
48002	0	0	16	113	-05	+06	4	0	-02	+03	-04	+02	-05	+02		
48003	4	0	16	95	-12	+07	10	0	-04	+05	-06	+09	-05	+08		
48005	0	0	16	113	-05	+06	4	0	-02	+03	-04	+02	-05	+02		
**VA	10	2	80	544	-07	+06	26	0	-04	+04	-06	+06	-06	+05		
50001	1	0	4	25	-05	+07	4	0	-09	-01	-06	+01	-07	+00		
50002	2	0	8	95	-13	+04	7	0	-14	+07	-09	+05	-10	+04		
**WV	3	0	12	120	-13	+06	11	0	-12	+05	-08	+04	-09	+03		
*RG03	42	10	260	1,853	-09	+09	129	0	-11	+09	-09	+06	-08	+05		

(continued)

TABLE D-1 (Continued)

AUTOMATED ANALYZERS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION				ACCURACY									
									PROBABILITY LIMITS							
			NO. ANAL	NO. PREC. CHECKS	PR.LIMS LOW	PR.LIMS UP	NO. AUDS	NO. AUDS L4	LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP	LEVEL 4 LOW	LEVEL 4 UP
01011	1	0	0	0			0	0								
01012	0	0	16	93	-13	+06	6	0	-03	+11	-04	+10				
01013	2	2	0	0			0	0								
**AL	3	2	16	93	-13	+06	6	0	-03	+11	-04	+10				
10001	1	0	4	50	-10	+05	6	0	-04	+05	-03	+05	-04	+03		
10003	2	0	8	47	-27	+05	6	0	-09	+04	-05	+02	-05	+02		
10011	3	2	20	580	-04	+04	25	0	-09	+10	-04	+09	-06	+09		
10012	3	2	20	130	-11	+09	7	0	-19	+10	-25	+16	-28	+16		
10013	3	2	20	141	-04	+04	25	0	-07	+07	-05	+06	-04	+06		
10016	1	0	4	54	-18	+09	6	0	-17	+16	-03	+05	-05	+05		
10017	3	2	20	120	-07	+05	8	0	-44	+43	-04	+10	-03	+05		
10018	3	2	16	98	-05	+06	7	0	-27	+14	-26	+13	-25	+11		
**FL	19	10	112	1,220	-09	+07	91	0	-17	+15	-10	+10	-10	+10		
11010	4	2	21	176	-10	+03	9	0	-24	+04	-07	+02	-05	+03		
**GA	4	2	21	176	-10	+03	9	0	-24	+04	-07	+02	-05	+03		
18001	7	0	24	145	-10	+05	24	0	-17	+15	-09	+07	-07	+06		
18002	1	2	12	50	-12	+11	4	0	-23	+10	-06	+08	-03	+06		
**KY	8	2	36	195	-10	+07	28	0	-17	+14	-08	+07	-07	+06		
25100	1	0	4	32	-09	+05	4	0	-11	+09	-05	+08	-04	+05		
**MS	1	0	4	32	-09	+05	4	0	-11	+09	-05	+08	-04	+05		
34001	4	0	13	76	-07	+05	13	0	-15	+09	-07	+05	-07	+04		
34002	2	0	8	53	-08	+05	8	0	-13	+07	-03	+04	-03	+04		
34003	3	2	20	130	-06	+05	59	0	-10	+07	-02	+05	-03	+04		
**NC	9	2	41	259	-07	+05	80	0	-11	+08	-03	+06	-04	+04		
42001	2	0	8	143	-12	+09	47	0	-23	+12	-09	+07	-08	+05		
**SC	2	0	8	143	-12	+09	47	0	-23	+12	-09	+07	-08	+05		
44002	3	2	20	175	-05	+04	33	0	-11	+06	-06	+05	-05	+05		
44003	3	2	20	116	-11	-01	28	0	-18	+09	-15	+08	-03	+04		
44004	1	0	5	33	-03	+04	11	0	-07	+07	-02	+03	-04	+04		
44005	1	0	4	71	-05	+02	9	0	-09	+06	-06	+04	-03	+06		
**TN	8	4	49	395	-09	+04	81	0	-13	+08	-10	+07	-04	+05		
*RG04	54	22	287	2,513	-09	+07	346	0	-16	+11	-08	+08	-07	+06		
14001	7	1	35	366	-11	+05	9	0	-09	+07	-08	+07	-08	+05		
14003	4	1	20	107	-11	+08	11	0	-18	+11	-10	+07	-09	+06		
**IL	11	2	55	473	-11	+05	20	0	-15	+10	-09	+07	-08	+05		
15001	3	2	15	77	-11	+08	9	0	-39	+22	-12	+11	-07	+10		
15002	2	0	1	2	-07	+14	0	0								
15008	2	0	11	66	-06	+03	11	0	-09	+09	-05	+09	-04	+04		
**IN	7	2	27	145	-09	+06	20	0	-26	+19	-08	+10	-06	+07		
23001	4	0	20	122	-07	+08	8	0	-10	+08	-05	+02	-07	+03		
23002	4	2	24	142	-15	+09	9	0	-16	+11	-03	+08	-04	+07		
**MI	8	2	44	264	-12	+10	17	0	-13	+09	-05	+06	-06	+06		
24001	9	2	49	386	-11	+06	21	0	-21	+17	-13	+12	-12	+08		
**MN	9	2	49	386	-11	+06	21	0	-21	+17	-13	+12	-12	+08		

(continued)

TABLE D-1 (Continued)

AUTOMATED ANALYZERS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION NO. ANAL	PRECISION NO. PREC. CHECKS	PRECISION PR.LIMS LOW	PRECISION PR.LIMS UP	ACCURACY NO. AUDS	ACCURACY NO. AUDS L4	PROBABILITY LIMITS LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP	LEVEL 4 LOW	LEVEL 4 UP
36001	1	2	12	78	-07	+10	5	0	-08	+15	-07	+11	-05	+07		
36006	0	2	8	49	-10	+07	5	0	-22	+10	-14	+09	-09	+12		
36007	1	0	4	22	-11	+10	4	0	-16	+07	-06	+03	-09	+03		
36008	3	2	20	120	-06	+09	6	0	-19	+16	-19	+15	-16	+08		
36009	0	2	8	46	-06	+04	4	0	-14	+10	-19	+14	-11	+03		
36010	0	2	8	50	-04	+05	4	0	-11	+13	-12	+08	-06	+00		
36012	1	0	4	34	-14	+08	4	0	-12	+20	-08	+15	-04	+10		
36014	1	0	3	3	+00	+00	4	0	-09	+03	+00	+00	-04	+03		
36015	2	0	8	83	-08	+02	4	0	-09	-05	-07	-02	-08	+00		
36016	1	0	4	23	-05	+05	4	0	-05	+04	-09	+05	-07	+0[illegible]		
**OH	10	10	79	508	-08	+08	44	0	-14	+12	-11	+09	-09	+06		
51001	4	2	27	160	-07	+08	6	0	-12	+21	-06	+07	-03	+00		
**WI	4	2	27	160	-07	+08	6	0	-12	+21	-06	+07	-03	+00		
*RG05	49	20	281	1,936	-10	+07	128	0	-18	+14	-10	+09	-09	+07		
04001	0	0	1	6	-03	+01	1	0								
**AR	0	0	1	6	-03	+01	1	0								
19001	1	2	12	74	-12	+05	4	0	-13	+01	-10	-01	-04	+00		
**LA	1	2	12	74	-12	+05	4	0	-13	+01	-10	-01	-04	+00		
32001	4	0	16	83	-08	+08	9	0	-11	+15	-04	+11	-06	+07		
32002	3	2	18	100	-06	+06	19	0	-11	+07	-08	+04	-09	+04		
**NM	7	2	34	183	-07	+07	28	0	-11	+10	-08	+08	-09	+06		
37101	2	0	8	45	-19	+14	4	0	+10	+16	+05	+12	-20	+15		
37102	0	2	8	45	-15	+09	10	0	-25	+15	-09	+09	-08	+11		
37103	2	0	8	44	-06	+04	10	0	-30	+41	-08	+11	-01	+05		
**OK	4	2	24	134	-14	+10	24	0	-28	+31	-08	+11	-07	+09		
45001	2	5	44	2,307	-07	+06	72	0	-22	+23	-15	+15	-17	+15		
45002	0	2	8	58	-13	+12	8	0	-20	+14	-18	+12	-13	+18		
45003	1	0	3	20	-05	+19	3	0	+02	+14	-07	+03	+00	+03		
45006	1	1	6	33	-11	+05	6	0	-18	+06	-14	+07	-08	+07		
**TX	4	8	61	2,418	-07	+07	89	0	-21	+21	-15	+14	-16	+15		
*RG06	16	14	132	2,815	-08	+07	146	0	-21	+21	-13	+13	-14	+13		
16001	2	0	8	75	-08	+04	9	0	-17	+15	-05	+01	-02	+03		
16002	2	0	5	32	-08	+08	11	0	-14	+09	-09	+10	-14	+10		
16003	1	0	4	27	-12	+10	5	0	-20	+00	-07	+04	-03	+01		
**IA	5	0	17	134	-09	+07	25	0	-17	+10	-08	+06	-10	+08		
17001	3	0	12	64	-08	+05	9	0	-10	+07	-07	+04	-06	+03		
**KS	3	0	12	64	-08	+05	9	0	-10	+07	-07	+04	-06	+03		
26001	0	1	4	16	-08	+13	4	0	+04	+04	-01	+11	+02	+03		
26002	2	2	20	139	-16	+13	7	0	-16	+10	-05	+06	-04	+03		
26003	4	0	13	90	-50	+13	6	0	-18	+38	-11	+27	-13	+22		
26004	2	1	11	59	-10	+16	7	0	-56	+71	-20	+17	-16	+06		
26005	1	0	3	17	-05	+08	4	0	-14	-11	-11	-07	-09	-07		
**MO	9	4	51	321	-31	+21	28	0	-34	+39	-15	+17	-14	+12		
28002	2	0	8	52	-01	+01	6	0	-06	+02	-01	+00	-01	+00		

(continued)

TABLE D-1 (Continued)

AUTOMATED ANALYZERS

			PRECISION				ACCURACY		PROBABILITY LIMITS							
REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	NO. ANAL	NO. PREC. CHECKS	PR.LIMS LOW	PR.LIMS UP	NO. AUDS	NO. AUDS L4	LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP	LEVEL 4 LOW	LEVEL 4 UP
28003	2	0	8	40	-09	+08	5	0	-10	+05	-08	+03	-07	+01		
**NB	4	0	16	92	-06	+05	11	0	-08	+04	-05	+03	-06	+02		
*RG07	21	4	96	611	-23	+17	73	0	-23	+21	-10	+09	-10	+08		
16001	11	2	52	282	-10	+08	20	4	-11	+22	-03	+10	-03	+08	+01	+03
**CO	11	2	52	282	-10	+08	20	4	-11	+22	-03	+10	-03	+08	+01	+03
27001	1	0	3	29	-12	+31	2	0	+04	+20	-10	+20	-17	+23		
27003	1	0	4	37	-16	+04	5	0	+06	+11	+02	+06	-03	+08		
27004	1	0	1	22	-03	+12	2	0								
**MT	3	0	8	88	-18	+21	9	0	+05	+15	-02	+11	-07	+13		
46001	7	2	39	425	-04	+04	31	0	-06	+09	-05	+06	-07	+06		
**UT	7	2	39	425	-04	+04	31	0	-06	+09	-05	+06	-07	+06		
*RG08	21	4	99	795	-09	+09	60	4	-09	+16	-05	+09	-06	+08	+01	+03
03100	4	0	8	57	-09	+04	4	2	-34	+14	-05	+03	-01	+02	+00	+01
03200	7	2	29	86	-11	+07	6	0	-17	+10	-06	+05	-05	+05		
03300	1	2	12	70	-04	+06	6	0	-05	+01	-03	+01	-04	+01		
**AZ	12	4	49	213	-09	+07	16	2	-21	+11	-05	+03	-04	+03	+00	+01
05001	24	2	84	452	-11	+15	38	0	-14	+14	-09	+09	-08	+07		
05004	3	4	64	407	-04	+04	32	0	-09	+09	-03	+02	-03	+01		
05036	5	2	26	149	-04	+06	5	5	-23	+06	-08	+02	-06	+01	-07	+02
05061	20	4	96	587	-04	+10	24	0	-04	+16	-03	+13	-04	+09		
**CA	52	12	270	1,595	-07	+11	99	5	-12	+14	-07	+09	-07	+06	-07	+02
12120	0	2	6	108	-14	+18	227	0	-25	+24	-08	+09	-10	+08		
**HI	0	2	6	108	-14	+18	227	0	-25	+24	-08	+09	-10	+08		
29100	2	0	?	?	???	???	?	?	???	???	???	???	???	???		
29200	2	0	8	54	-08	+06	8	0	-09	+08	-05	+03	-03	+02		
29300	2	1	10	62	-05	+03	5	3	-01	+02	-07	+14	-02	+04	-01	+03
**NV	6	1	18	116	-07	+05	13	3	-07	+06	-07	+09	-03	+03	-01	+03
*RG09	70	19	343	2,032	-08	+11	355	10	-21	+21	-08	+09	-09	+07	-05	+04
02020	5	0	18	106	-03	+04	13	0	-13	+11	-03	+03	-04	+03		
**AK	5	0	18	106	-03	+04	13	0	-13	+11	-03	+03	-04	+03		
13001	2	0	3	19	-09	+05	3	0	-05	+05	-04	-01	-02	-01		
**ID	2	0	3	19	-09	+05	3	0	-05	+05	-04	-01	-02	-01		
38001	5	2	28	367	-04	+07	68	0	-18	+10	-07	+05	-06	+02		
**OR	5	2	28	367	-04	+07	68	0	-18	+10	-07	+05	-06	+02		
49001	14	2	56	637	-08	+01	40	0	-08	+05	-07	+03	-04	+02		
**WA	14	2	56	637	-08	+01	40	0	-08	+05	-07	+03	-04	+02		
*RG10	26	4	105	1,129	-08	+06	124	0	-15	+09	-07	+04	-06	+03		
NATION	326	114	1,789	15,714	-10	+09	1,515	14	-18	+16	-09	+09	-08	+07	-03	+05

TABLE D-2. CONTINUOUS SO_2 PRECISION AND ACCURACY ANNUAL VALUES FOR REPORTING ORGANIZATIONS

			AUTOMATED ANALYZERS													
REPORTING			PRECISION				ACCURACY									
ORGAN									PROBABILITY LIMITS							
STATE REGION	NO. SLAM	NO. NAMS	NO. ANAL	NO. PREC. CHECKS	PR.LIMS LOW	PR.LIMS UP	NO. AUDS	NO. AUDS L4	LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP	LEVEL 4 LOW	LEVEL 4 UP
50001	2	3	17	106	-06	+10	17	3	-04	+12	-03	+06	-04	+05	-03	+08
50002	3	3	24	279	-09	+07	24	0	-11	+14	-09	+10	-07	+09		
**WV	5	6	41	385	-09	+08	41	3	-09	+13	-07	+09	-06	+07	-03	+08
*RG03	40	43	387	2,824	-12	+09	232	4	-14	+12	-10	+09	-10	+09	-15	+07
01011	1	0	0	0			0	0								
01012	1	0	3	13	-30	+07	4	0	-34	-09	-25	+13	-22	+01		
01013	0	1	8	39	-22	+20	3	0	-06	+12	-07	+02	-21	+07		
01015	1	0	4	4	-06	+02	0	0								
01016	0	0	40	2,283	-09	+14	8	8	-13	+11	-10	+10	-09	+08	-07	+04
**AL	3	1	55	2,339	-09	+15	15	8	-27	+16	-14	+10	-16	+09	-07	+04
10001	1	0	4	54	-11	+04	6	0	-05	+10	-02	+11	-07	+07		
10002	3	0	11	119	-19	+19	7	1	-30	+32	-26	+40	-29	+41		
10003	2	0	7	48	-21	+08	6	0	-14	+00	-19	+20	-14	+14		
10004	1	0	4	56	-23	+08	6	0	-71	+41	-03	+30	-09	+52		
10005	0	0	3	17	-22	+00	5	0	-13	+18	-19	+27	-02	+16		
10007	0	0	8	35	-18	+09	6	1	-40	+16	-37	+22	-40	+26		
10011	3	1	16	498	-10	+01	22	0	-15	+09	-12	+06	-12	+09		
10012	3	2	27	158	-15	+02	7	0	-16	+07	-08	+07	-13	+08		
10013	1	2	16	205	-11	+03	20	2	-14	+05	-09	+06	-10	+07		
10015	0	0	4	30	-17	+10	1	0								
10016	1	0	4	50	-16	+08	6	0	-05	+12	-01	+13	-02	+12		
10018	2	0	4	39	-21	+22	6	0	-39	-10	-39	-05	-40	-06		
**FL	17	5	108	1,309	-15	+07	98	4	-26	+16	-20	+18	-21	+21		
11010	10	1	34	298	-27	+13	12	1	-25	+29	-24	+25	-15	+23		
**GA	10	1	34	298	-27	+13	12	1	-25	+29	-24	+25	-15	+23		
18001	8	0	32	189	-19	+02	41	1	-26	+14	-20	+10	-19	+07		
18002	0	4	16	95	-16	+13	5	0	-03	+08	+00	+09	+00	+07		
18003	0	0	45	3,847	-12	+11	20	16	-24	+19	-14	+13	-10	+10	-08	+06
**KY	8	4	93	4,131	-12	+11	66	17	-25	+16	-18	+12	-17	+10	-08	+06
25100	2	2	14	146	-19	+07	11	0	-24	+01	-23	+00	-23	-01		
**MS	2	2	14	146	-19	+07	11	0	-24	+01	-23	+00	-23	-01		
34001	4	0	56	431	-09	+05	25	3	-13	+09	-11	+07	-09	+06	-12	+07
34002	1	0	4	19	-17	+03	3	0	-06	+23	-03	+04	+03	+04		
34003	0	1	4	22	-22	+02	7	0	-28	-09	-23	-07	-21	-06		
**NC	5	1	64	472	-11	+06	35	3	-23	+13	-18	+09	-16	+09	-12	+07
42001	4	1	26	272	-11	+09	115	0	-16	+13	-10	+11	-10	+10		
**SC	4	1	26	272	-11	+09	115	0	-16	+13	-10	+11	-10	+10		
44001	2	0	12	169	-07	+05	11	3	-11	+07	-18	+14	-12	+04	-09	+03
44002	1	0	4	37	-11	+06	8	0	-18	+13	-19	+14	-20	+12		
44003	0	1	4	24	-14	+02	8	0	-12	+03	-12	+09	-12	+12		
44006	0	0	134	8,963	-09	+13	59	54	-13	+08	-12	+10	-10	+09	-10	+09
**TN	3	1	154	9,193	-09	+12	86	57	-13	+08	-13	+11	-12	+09	-10	+09
*RG04	52	16	548	18,160	-12	+13	438	90	-21	+14	-16	+14	-16	+13	-09	+08
14001	9	11	84	972	-14	+12	22	0	-09	+10	-07	+11	-08	+12		
14003	6	3	34	170	-20	+14	13	0	-18	+09	-13	+06	-14	+04		
**IL	15	14	118	1,142	-15	+12	35	0	-13	+11	-11	+11	-12	+11		

(continued)

TABLE D-2 (Continued)

AUTOMATED ANALYZERS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	------PRECISION------ NO. ANAL	NO. PREC. CHECKS	PR.LIMS LOW	PR.LIMS UP	------ACCURACY------ NO. AUDS	NO. AUDS L4	---PROBABILITY LIMITS--- LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP	LEVEL 4 LOW	LEVEL 4 UP
07001	11	2	51	342	-12	+08	21	0	-13	+13	-11	+08	-10	+09		
**CT	11	2	51	342	-12	+08	21	0	-13	+13	-11	+08	-10	+09		
20001	0	2	8	99	-08	+06	16	0	-05	+13	-07	+16	-04	+12		
**ME	0	2	8	99	-08	+06	16	0	-05	+13	-07	+16	-04	+12		
22001	6	11	68	696	-10	+10	21	0	-12	+09	-12	+09	-12	+11		
**MA	6	11	68	696	-10	+10	21	0	-12	+09	-12	+09	-12	+11		
30001	4	1	19	447	-15	+10	50	0	-09	+06	-09	+08	-10	+07		
**NH	4	1	19	447	-15	+10	50	0	-09	+06	-09	+08	-10	+07		
41001	1	4	16	446	-09	+07	12	0	-13	+08	-10	+07	-07	+07		
**RI	1	4	16	446	-09	+07	12	0	-13	+08	-10	+07	-07	+07		
47001	2	1	12	100	-10	+05	7	0	-08	+09	-09	+08	-07	+07		
**VT	2	1	12	100	-10	+05	7	0	-08	+09	-09	+08	-07	+07		
*RG01	24	21	174	2,130	-11	+09	127	0	-11	+10	-10	+10	-10	+09		
31001	6	8	55	406	-13	+13	28	0	-09	+39	-08	+10	-13	+10		
**NJ	6	8	55	406	-13	+13	28	0	-09	+09	-08	+10	-13	+10		
33001	18	18	152	856	-07	+07	249	0	-09	+12	-06	+10	-09	+10		
**NY	18	18	152	856	-07	+07	249	0	-09	+12	-06	+10	-09	+10		
40001	3	0	9	96	-13	+08	10	0	-26	+14	-25	+23	-13	+19		
**PR	3	0	9	96	-13	+08	10	0	-26	+14	-25	+23	-13	+19		
55001	3	0	?	?	???	???	?	?	???	???	???	???	???	???		
**VI	3	0	?	?	???	???	?	?	???	???	???	???	???	???		
*RG02	30	26	216	1,358	-09	+09	287	0	-10	+12	-07	+11	-09	+10		
08001	7	1	32	202	-10	+09	9	0	-13	+10	-09	+09	-10	+12		
**DE	7	1	32	202	-10	+09	9	0	-13	+10	-09	+09	-10	+12		
09001	0	2	8	52	-15	+05	8	0	-17	+13	-05	+11	-06	+08		
**DC	0	2	8	52	-15	+05	8	0	-17	+13	-05	+11	-06	+08		
21001	1	5	24	230	-13	+11	26	0	-19	+17	-10	+10	-09	+08		
21003	2	0	8	48	-16	+11	10	0	-19	+14	-17	+16	-16	+16		
21005	0	0	3	17	-12	+04	4	0	-19	+17	-19	+12	-17	+14		
**MD	3	5	35	295	-13	+10	40	0	-19	+16	-13	+12	-11	+11		
39001	14	12	119	733	-10	+11	30	0	-14	+13	-12	+08	-10	+09		
39002	2	5	28	315	-09	+08	67	0	-10	+08	-05	+05	-10	+08	-15	+02
39003	2	5	28	175	-16	+05	8	1	-21	+04	-17	+04	-17	+05		
**PA	18	22	175	1,223	-11	+10	105	1	-13	+10	-09	+07	-11	+08	-15	+02
48001	3	7	40	274	-11	+06	10	0	-08	+03	-06	+01	-08	+01		
48002	0	0	20	143	-11	+07	4	0	-10	+03	-09	+03	-11	+04		
48003	4	0	16	107	-17	+06	11	0	-11	+05	-13	+09	-12	+09		
48005	0	0	20	143	-11	+07	4	0	-10	+03	-09	+03	-11	+04		
**VA	7	7	96	667	-12	+06	29	0	-10	+03	-10	+05	-11	+05		

(continued)

TABLE D-2 (Continued)

AUTOMATED ANALYZERS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION				ACCURACY									
			NO. ANAL	NO. PREC. CHECKS	PR.LIMS		NO. AUDS	NO. AUDS L4	PROBABILITY LIMITS LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
					LOW	UP			LOW	UP	LOW	UP	LOW	UP	LOW	UP
15001	7	6	52	250	-14	+09	24	0	-17	+11	-11	+10	-12	+11		
15002	1	0	5	27	-17	+06	10	0	-14	+11	-12	+10	-11	+12		
15008	3	0	12	76	-11	+09	12	0	-13	+15	-13	+14	-13	+12		
15010	0	0	4	29	-05	+12	2	0	-03	+15	-04	+11	-09	+07		
15100	0	0	4	17	-19	+12	8	0	-13	+06	-09	+04	-07	+04		
**IN	11	6	77	399	-14	+09	56	0	-15	+12	-11	+10	-11	+10		
23001	2	7	38	200	-14	+11	13	0	-16	+10	-11	+09	-11	+09		
23002	4	4	25	119	-20	+09	9	0	-17	+15	-15	+15	-12	+08		
**MI	6	11	63	319	-17	+11	22	0	-17	+12	-13	+11	-11	+09		
24001	3	13	46	520	-12	+11	26	2	-13	+12	-09	+08	-09	+06	-05	+01
**MN	3	13	46	520	-12	+11	26	2	-13	+12	-09	+08	-09	+06	-05	+01
36001	0	2	8	45	-09	+10	4	0	-03	+14	+02	+15	+07	+14		
36002	2	3	19	97	-16	+12	4	0	-67	+26	-61	+43	-24	-21		
36003	2	1	8	74	-13	+13	0	0								
36004	2	0	?	?	???	???	?	?	???	???	???	???	???	???		
36006	0	2	13	66	-20	+05	3	0	-36	+12	-30	+10	-35	+24		
36007	0	2	8	43	-09	+10	4	0	-25	+22	-26	+24	-24	+21		
36008	4	2	27	162	-10	+10	8	0	-09	+14	-05	+10	-11	+14		
36009	0	5	20	116	-19	+20	6	0	-27	+04	-26	+07	-26	+04		
36010	1	1	8	54	-16	+08	4	0	-18	+05	-17	+09	-12	+05		
36012	2	0	8	52	-11	+06	6	0	-19	+24	-16	+17	-21	+19		
36013	3	0	0	0			4	0	-05	+12	-02	+18	+00	+15		
36014	3	1	11	53	-10	+14	6	0	-33	+28	-18	+08	-18	+09		
36015	0	3	12	135	-11	+10	2	0	-21	+35	-17	+28	-14	+21		
36016	0	2	8	49	-11	+09	4	0	-25	+31	-16	+11	-13	+07		
**OH	19	24	150	946	-14	+12	55	0	-27	+23	-22	+20	-20	+17		
51001	5	13	67	436	-12	+08	18	3	-14	+15	-16	+14	-14	+12	-13	+05
**WI	5	13	67	436	-12	+08	18	3	-14	+15	-16	+14	-14	+12	-13	+05
*RG05	59	81	521	3,762	-14	+11	212	5	-18	+15	-15	+14	-14	+12	-09	+04
04001	1	1	8	47	-09	+05	8	0	-23	-01	-18	+03	-17	+05		
**AR	1	1	8	47	-09	+05	8	0	-23	-01	-18	+03	-17	+05		
19001	8	0	24	136	-20	+09	7	0	-25	+22	-19	+23	-19	+22		
**LA	8	0	24	136	-20	+09	7	0	-25	+22	-19	+23	-19	+22		
32001	10	0	31	169	-12	+09	13	0	-11	+04	-11	+06	-13	+06		
32002	0	1	4	11	-23	+05	6	0	-23	+05	-18	+08	-18	+04		
**NM	10	1	35	180	-13	+09	19	0	-15	+05	-12	+06	-14	+05		
37101	5	0	19	75	-28	+14	6	0	-17	+19	-17	+19	-19	+22		
37102	1	0	1	3	-12	+16	2	0	-21	+28	+07	+14	-11	+17		
37103	1	1	8	32	-14	+08	8	0	-21	+16	-20	+17	-19	+18		
**OK	7	1	28	110	-24	+13	16	0	-18	+17	-18	+19	-17	+18		
45001	6	4	96	4,872	-08	+05	162	11	-21	+29	-11	+17	-11	+15	-14	+07
45002	1	0	4	29	-21	+11	4	0	-08	+04	-11	+05	-07	+04		
45003	1	0	3	20	-11	+13	3	1	-01	+01	-06	+04	-11	+09	+00	+12
45006	1	0	15	89	-16	+08	14	0	-16	+12	-17	+11	-20	+14		
**TX	9	4	118	5,010	-09	+05	183	12	-21	+28	-12	+16	-12	+15	-14	+07

(continued)

TABLE D-2 (Continued)

AUTOMATED ANALYZERS			PRECISION				ACCURACY									
									PROBABILITY LIMITS							
REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	NO. ANAL	NO. PREC. CHECKS	PR.LIMS LOW	UP	NO. AUDS	NO. AUDS L4	LEVEL 1 LOW	UP	LEVEL 2 LOW	UP	LEVEL 3 LOW	UP	LEVEL 4 LOW	UP
*RG06	35	7	213	5,483	-10	+06	233	12	-22	+26	-13	+16	-13	+15	-14	+07
16001	0	0	2	8	-14	+21	1	0								
16002	1	1	2	14	-03	+04	0	0								
16003	1	2	17	81	-11	+08	16	5	-17	+12	-21	+23	-22	+22	-13	+17
**IA	2	3	21	103	-11	+09	17	5	-17	+12	-21	+23	-22	+22	-13	+17
17001	0	2	8	43	-32	+31	4	0	-39	+11	-30	+18	-21	+11		
**KS	0	2	8	43	-32	+31	4	0	-39	+11	-30	+18	-21	+11		
26001	4	0	30	162	-24	+11	9	0	-56	+30	-34	+17	-26	+13		
26002	2	2	22	119	-11	+08	7	0	-15	+21	-02	+11	-03	+07		
26003	4	1	10	60	-20	+23	6	0	-13	+30	-08	+23	-08	+17		
26004	1	1	8	49	-14	+10	6	0	-37	+16	-14	+08	-09	+05		
26005	1	0	4	20	-17	+10	6	0	-04	+04	-06	+12	-08	+17		
**MO	12	4	74	410	-19	+13	34	0	-37	+28	-22	+20	-17	+15		
28003	0	1	2	5	-14	+07	2	0	+01	+09	-04	+04	-23	+18		
**NB	0	1	2	5	-14	+07	2	0	+01	+09	-04	+04	-23	+18		
*RG07	14	10	105	561	-20	+15	57	5	-31	+23	-21	+20	-19	+17	-13	+17
06001	1	2	8	52	-25	+16	8	0	-17	+20	-15	+22	-14	+20		
**CO	1	2	8	52	-25	+16	8	0	-17	+20	-15	+22	-14	+20		
27001	0	1	8	87	-09	+18	15	15	-45	+35	-13	+15	-10	+13	-10	+11
**MT	0	1	8	87	-09	+18	15	15	-45	+35	-13	+15	-10	+13	-10	+11
35001	4	0	16	88	-10	+04	16	0	-12	+13	-13	+09	-13	+07		
**ND	4	0	16	88	-10	+04	16	0	-12	+13	-13	+09	-13	+07		
46001	4	2	24	271	-08	+07	24	12	-10	+08	-09	+09	-09	+08	-06	+05
**UT	4	2	24	271	-08	+07	24	12	-10	+08	-09	+09	-09	+08	-06	+05
*RG08	9	5	56	498	-12	+11	63	27	-23	+21	-12	+13	-12	+11	-08	+08
03100	10	0	40	297	-12	+04	19	6	-18	+08	-15	+04	-15	+05	-10	+02
03200	0	1	2	3	-10	+04	0	0								
03300	1	1	8	38	-11	+10	6	0	-13	+14	-12	+12	-09	+09		
**AZ	11	2	50	338	-12	+05	25	6	-18	+10	-15	+06	-14	+06	-10	+02
05001	15	2	68	362	-17	+09	24	0	-15	+27	-14	+24	-14	+23		
05004	7	2	36	228	-19	+04	18	0	-12	+12	-13	+10	-14	+13		
05036	6	0	19	61	-13	+14	6	6	-38	+23	-20	+14	-17	+14	-14	+19
05061	14	6	80	506	-18	+07	20	0	-30	+19	-21	+16	-22	+16		
**CA	42	10	203	1,157	-18	+08	68	6	-23	+23	-18	+19	-17	+18	-14	+19
12120	7	0	?	?	???	???	?	?	???	???	???	???	???	???		
**HI	7	0	?	?	???	???	?	?	???	???	???	???	???	???		
54100	6	0	?	?	???	???	?	?	???	???	???	???	???	???		
**GU	6	0	?	?	???	???	?	?	???	???	???	???	???	???		
*RG09	66	12	253	1,495	-17	+08	93	12	-22	+20	-18	+16	-17	+16	-13	+08
13001	3	0	12	140	-07	+07	10	8	-10	+04	-07	+05	-08	+07	-04	+09
**ID	3	0	12	140	-07	+07	10	8	-10	+04	-07	+05	-08	+07	-04	+09

(continued)

TABLE D-2 (Continued)

AUTOMATED ANALYZERS

			------PRECISION------				------------------ACCURACY------------------									
									--------PROBABILITY LIMITS------							
REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	NO. ANAL	NO. PREC. CHECKS	PR.LIMS LOW	UP	NO. AUDS	NO. AUDS L4	LEVEL 1 LOW	UP	LEVEL 2 LOW	UP	LEVEL 3 LOW	UP	LEVEL 4 LOW	UP
38001	1	2	8	54	-22	+16	13	0	-26	+09	-13	+12	-12	+17		
**OR	1	2	8	54	-22	+16	13	0	-26	+09	-13	+12	-12	+17		
49001	8	3	38	422	-08	+07	26	3	-09	+06	-08	+06	-07	+06	-10	+06
**WA	8	3	38	422	-08	+07	26	3	-09	+06	-08	+06	-07	+06	-10	+06
*RG10	12	5	58	616	-10	+09	49	11	-17	+10	-10	+08	-09	+10	-07	+09
NATION	341	226	2,531	36,887	-12	+11	1,791	166	-19	+17	-13	+13	-13	+12	-12	+08

TABLE D-3. CONTINUOUS NO_2 PRECISION AND ACCURACY ANNUAL VALUES FOR REPORTING ORGANIZATIONS

			AUTOMATED ANALYZERS													
REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION				ACCURACY									
									PROBABILITY LIMITS							
			NO. ANAL	NO. PREC. CHECKS	PR.LIMS LOW	PR.LIMS UP	NO. AUDS	NO. AUDS L4	LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP	LEVEL 4 LOW	LEVEL 4 UP
07001	3	0	12	67	-14	+16	4	0	-07	+12	-07	+04	-11	+05		
**CT	3	0	12	67	-14	+16	4	0	-07	+12	-07	+04	-11	+05		
22001	5	2	28	277	-13	+13	12	0	-14	+15	-14	+14	-11	+11		
**MA	5	2	28	277	-13	+13	12	0	-14	+15	-14	+14	-11	+11		
30001	1	0	?	?	???	???	?	?	???	???	???	???	???	???		
**NH	1	0	?	?	???	???	?	?	???	???	???	???	???	???		
41001	1	0	4	51	-05	+14	4	0	-23	+18	-18	+15	-10	+11		
**RI	1	0	4	51	-05	+14	4	0	-23	+18	-18	+15	-10	+11		
*RG01	10	2	44	395	-13	+14	20	0	-14	+15	-13	+12	-10	+10		
31001	4	2	20	130	-15	+12	8	0	-13	+11	-09	+15	-11	+10		
**NJ	4	2	20	130	-15	+12	8	0	-13	+11	-09	+15	-11	+10		
33001	1	4	24	119	-08	+11	90	0	-11	+14	-09	+08	-09	+06		
**NY	1	4	24	119	-08	+11	90	0	-11	+14	-09	+08	-09	+06		
*RG02	5	6	44	249	-12	+12	98	0	-11	+14	-09	+08	-09	+07		
08001	2	0	8	50	-11	+11	8	0	-09	+12	-10	+08	-06	+05		
**DE	2	0	8	50	-11	+11	8	0	-09	+12	-10	+08	-06	+05		
09001	0	2	8	60	-08	+08	8	0	-11	+05	-03	+06	-04	+06		
**DC	0	2	8	60	-08	+08	8	0	-11	+05	-03	+06	-04	+06		
21001	3	1	19	130	-18	+23	14	0	-31	+22	-15	+09	-11	+07		
21003	2	0	5	19	-10	+08	3	0	-09	-03	-11	+08	-08	+05		
21005	1	1	8	64	-07	+10	9	0	-03	+10	-04	+07	-06	+08		
**MD	6	2	32	213	-15	+19	26	0	-23	+19	-12	+09	-10	+07		
39001	17	0	72	452	-10	+10	18	0	-19	+21	-17	+16	-18	+16		
39002	0	2	8	53	-08	+08	19	0	-10	+15	-07	+08	-06	+07		
39003	2	2	16	92	-16	+12	4	3	-02	+12	-01	+05	-01	+02	-02	+04
**PA	19	4	96	597	-11	+11	41	3	-14	+18	-12	+12	-12	+12	-02	+04
48001	5	0	20	134	-08	+08	10	0	-17	+12	-15	+03	-12	+00		
48002	0	0	10	71	-08	+08	5	0	-20	+14	-16	+02	-15	+01		
48003	4	0	15	94	-25	+20	15	0	-17	+10	-11	+10	-11	+12		
48005	0	0	10	71	-08	+08	5	0	-20	+14	-16	+02	-15	+01		
**VA	9	0	55	370	-14	+13	35	0	-17	+11	-15	+07	-15	+08		
50001	2	0	8	50	-05	+08	8	0	-06	+13	-07	+09	-08	+07		
50002	2	0	8	88	-04	+12	8	0	-06	+14	-04	+11	-05	+06		
**WV	4	0	16	138	-04	+11	16	0	-06	+13	-05	+10	-06	+06		
*RG03	40	8	215	1,428	-12	+13	134	3	-16	+16	-12	+10	-12	+09	-02	+04
01012	1	0	?	?	???	???	?	?	???	???	???	???	???	???		
01014	0	0	3	11	-04	+05	2	0	-89	+89	-77	+35	-34	+16		
**AL	1	0	3	11	-04	+05	2	0	-89	+89	-77	+35	-34	+16		
10001	1	0	4	50	-08	+26	5	0	-38	-09	-34	-09	-34	-06		
10003	1	0	3	11	-42	+59	3	0								

(continued)

TABLE D-3 (Continued)

AUTOMATED ANALYZERS

REPORTING ORGAN			PRECISION				ACCURACY									
									PROBABILITY LIMITS							
STATE REGION	NO. SLAM	NO. NAMS	NO. ANAL	NO. PREC. CHECKS	PR.LIMS LOW	PR.LIMS UP	NO. AUDS	NO. AUDS L4	LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP	LEVEL 4 LOW	LEVEL 4 UP
10011	2	0	4	53	-15	+06	3	0	-28	-07	-38	+08	-35	+05		
10012	2	0	8	31	-18	+26	3	0	-13	-04	-07	-05	-09	-07		
10013	1	0	4	27	-14	+19	8	0	-16	+04	-16	+05	-10	+03		
10016	1	0	4	55	-21	+12	3	0	-73	+33	-50	+17	-48	+14		
10017	2	0	1	4	-06	+11	1	0								
10018	0	2	5	39	-20	+14	3	0	-72	-10	-70	-07	-77	+01		
**FL	10	2	33	270	-21	+22	29	0	-44	+12	-40	+11	-39	+12		
11010	0	2	7	42	-30	+31	4	0	-24	+24	-18	+06	-06	-04		
**GA	0	2	7	42	-30	+31	4	0	-24	+24	-18	+06	-06	-04		
18001	6	0	24	127	-17	+12	24	0	-24	+18	-18	+16	-19	+15		
18002	1	0	4	15	-26	+25	3	0	-24	+06	-13	-01	-10	+02		
18003	0	0	8	700	-12	+08	5	0	-26	+26	-05	+11	-02	+11		
**KY	7	0	36	842	-13	+09	32	0	-24	+18	-17	+15	-17	+15		
34003	1	0	?	?	???	???	?	?	???	???	???	???	???	???		
**NC	1	0	?	?	???	???	?	?	???	???	???	???	???	???		
44002	1	0	?	?	???	???	?	?	???	???	???	???	???	???		
44006	0	0	8	473	-19	+13	0	0								
**TN	1	0	8	473	-19	+13	0	0								
*RG04	20	4	87	1.638	-17	+13	67	0	-37	+22	-32	+18	-29	+17		
14001	3	1	16	108	-12	+04	7	0	-08	+07	-02	+02	+00	+03		
14003	6	1	28	134	-19	+18	10	0	-09	+09	-08	+07	-07	+07		
**IL	9	2	44	242	-17	+13	17	0	-08	+08	-06	+06	-06	+06		
15001	6	0	?	?	???	???	?	?	???	???	???	???	???	???		
15002	1	0	?	?	???	???	?	?	???	???	???	???	???	???		
15008	1	0	4	22	-09	+15	5	0	-25	+20	-17	+20	-21	+21		
**IN	8	0	4	22	-09	+15	5	0	-25	+20	-17	+20	-21	+21		
23002	1	2	9	48	-20	+22	4	0	-26	+31	-05	+01	-09	-01		
**MI	1	2	9	48	-20	+22	4	0	-26	+31	-05	+01	-09	-01		
24001	0	2	9	127	-19	+16	8	0	-32	+14	-16	+04	-10	+03		
**MN	0	2	9	127	-19	+16	8	0	-32	+14	-16	+04	-10	+03		
36001	1	0	4	20	-11	+18	2	0	-24	+67	+03	+19	+08	+09		
36007	1	0	4	21	-14	+09	4	0	-20	+39	-14	+09	-22	+15		
36008	0	2	8	48	-13	+17	6	0	-21	+13	-28	+29	-13	+10		
36009	0	2	8	39	-21	+24	6	0	-21	+03	-23	+03	-22	+03		
36010	0	0	2	11	-07	+06	4	0	-18	+13	-11	+05	-09	+05		
36014	1	0	4	13	-14	+10	4	0	-33	+11	-11	+01	-14	+01		
36016	1	0	3	9	-12	+05	2	0	-22	+10	-12	+05	-13	+07		
**OH	4	4	33	161	-16	+17	28	0	-29	+25	-19	+14	-17	+10		
51001	0	2	8	49	-12	+09	4	0	-11	+24	-06	+14	-05	+06		
**WI	0	2	8	49	-12	+09	4	0	-11	+24	-06	+14	-05	+06		
*RG05	22	12	107	649	-17	+15	66	0	-24	+20	-15	+12	-13	+09		
04001	1	0	4	23	-24	+19	4	2	-22	+14	-14	+11	-15	+09	-15	+10
**AR	1	0	4	23	-24	+19	4	2	-22	+14	-14	+11	-15	+09	-15	+10

(continued)

TABLE D-3 (Continued)

AUTOMATED ANALYZERS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	------PRECISION------				------ACCURACY------									
			NO. ANAL	NO. PREC. CHECKS	PR.LIMS LOW	UP	NO. AUDS	NO. AUDS L4	PROBABILITY LIMITS LEVEL 1 LOW	UP	LEVEL 2 LOW	UP	LEVEL 3 LOW	UP	LEVEL 4 LOW	UP
19001	14	2	16	101	-14	+08	6	0	-07	+00	-08	+00	-10	+00		
**LA	14	2	16	101	-14	+08	6	0	-07	+00	-08	+00	-10	+00		
32001	1	0	0	0			0	0								
32002	1	0	4	9	-20	-02	7	0	-23	+02	-19	+08	-19	+10		
**NM	2	0	4	9	-20	-02	7	0	-23	+02	-19	+08	-19	+10		
37101	2	0	8	37	-16	+07	2	0	-69	+41	-35	+10	-24	+07		
37102	1	0	?	?	???	???	?	?	???	???	???	???	???	???		
37103	3	0	11	58	-12	+15	8	0	-25	+26	-14	+23	-13	+25		
**OK	6	0	19	95	-15	+13	10	0	-25	+23	-15	+21	-13	+23		
45001	2	2	56	2,773	-07	+07	91	0	-30	+51	-13	+20	-13	+13		
45002	1	1	8	60	-16	+13	8	0	-15	+27	-15	+13	-22	+10		
45006	2	1	11	57	-05	+03	9	0	-07	+04	-03	+02	-03	+02		
**TX	5	4	75	2,890	-07	+07	108	0	-29	+48	-13	+19	-13	+12		
*RG06	28	6	118	3,118	-08	+08	135	2	-30	+44	-14	+18	-14	+13	-15	+10
17001	1	0	3	17	-52	+10	0	0								
**KS	1	0	3	17	-52	+10	0	0								
26001	0	2	12	69	-14	+12	6	0	-48	+60	-12	+10	-06	+01		
26002	2	1	20	105	-13	+18	7	0	-46	+31	-20	+14	-10	+03		
26003	4	0	7	27	-41	+20	6	0	-52	+14	-24	+06	-06	+02		
26004	1	1	8	47	-26	+20	6	0	-50	+20	-26	+14	-20	+15		
**MO	7	4	47	248	-21	+19	25	0	-50	+32	-20	+11	-11	+06		
*RG07	8	4	50	265	-25	+21	25	0	-50	+32	-20	+11	-11	+06		
06001	2	2	16	80	-24	+26	8	8	-37	+51	-11	+21	-13	+19	-13	+18
**CO	2	2	16	80	-24	+26	8	8	-37	+51	-11	+21	-13	+19	-13	+18
35001	2	0	7	33	-07	+10	6	0	-12	+25	-05	+16	-04	+13		
**ND	2	0	7	33	-07	+10	6	0	-12	+25	-05	+16	-04	+13		
46001	3	0	12	134	-10	+16	12	0	-11	+14	-07	+06	-06	+04		
**UT	3	0	12	134	-10	+16	12	0	-11	+14	-07	+06	-06	+04		
*RG08	7	2	35	247	-15	+20	26	8	-23	+31	-10	+15	-10	+12	-13	+18
03200	0	2	2	0			0	0								
03300	2	0	6	35	-12	+12	6	0	-09	+06	-09	+07	-13	+09		
**AZ	2	2	8	35	-12	+12	6	0	-09	+06	-09	+07	-13	+09		
05001	28	0	68	325	-15	+16	33	25	-22	+20	-19	+15	-21	+14	-20	+14
05004	7	5	48	311	-07	+09	24	0	-12	+09	-10	+09	-09	+09		
05036	5	2	13	87	-17	+07	6	4	-13	+16	-11	+14	-13	+12	-13	+10
05061	17	4	83	433	-09	+14	22	0	-27	+21	-21	+21	-22	+21		
**CA	57	11	212	1,156	-12	+14	85	29	-21	+17	-17	+15	-18	+15	-19	+13
12120	1	0	?	?	???	???	?	?	???	???	???	???	???	???		
**HI	1	0	?	?	???	???	?	?	???	???	???	???	???	???		
29200	1	0	?	?	???	???	?	?	???	???	???	???	???	???		
29300	1	0	8	49	-04	+09	5	3	-01	+01	-10	+15	-06	+02	-06	+01
**NV	2	0	8	49	-04	+09	5	3	-01	+01	-10	+15	-06	+02	-06	+01

(continued)

TABLE D-3 (Continued)

AUTOMATED ANALYZERS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION				ACCURACY										
									PROBABILITY LIMITS								
			NO. ANAL	NO. PREC. CHECKS	PR.LIMS		NO. AUDS	NO. AUDS L4	LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
					LOW	UP			LOW	UP	LOW	UP	LOW	UP	LOW	UP
*RG09	62	13	228	1,240	-12	+13	96	32	-20	+16	-16	+15	-17	+14	-18	+13
38001	1	0	5	21	-16	+16	9	0	-64	+42	-28	+15	-16	+07		
**OR	1	0	5	21	-16	+16	9	0	-64	+42	-28	+15	-16	+07		
49001	0	2	8	49	-26	+24	4	0	-06	+06	-02	+02	-05	+04		
**WA	0	2	8	49	-26	+24	4	0	-06	+06	-02	+02	-05	+04		
*RG10	1	2	13	70	-23	+22	13	0	-51	+36	-23	+14	-14	+07		
NATION	203	59	941	9,299	-13	+13	680	45	-26	+27	-16	+15	-15	+12	-17	+13

TABLE D-4. OZONE PRECISION AND ACCURACY ANNUAL VALUES FOR REPORTING ORGANIZATIONS

			AUTOMATED ANALYZERS													
			PRECISION				ACCURACY									
									PROBABILITY LIMITS							
REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	NO. ANAL	NO. PREC. CHECKS	PR.LIMS LOW	PR.LIMS UP	NO. AUDS	NO. AUDS L4	LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP	LEVEL 4 LOW	LEVEL 4 UP
07001	3	6	27	117	-08	+09	13	0	-16	+10	-09	+06	-07	+05		
**CT	3	6	27	117	-08	+09	13	0	-16	+10	-09	+06	-07	+05		
20001	2	0	5	52	-08	+09	16	0	-04	+10	-07	+10	-08	+10		
**ME	2	0	5	52	-08	+09	16	0	-04	+10	-07	+10	-08	+10		
22001	5	8	42	372	-17	+12	21	0	-09	+06	-07	+10	-10	+15		
**MA	5	8	42	372	-17	+12	21	0	-09	+06	-07	+10	-10	+15		
30001	3	1	14	294	-16	+11	24	0	-10	+12	-11	+10	-10	+09		
**NH	3	1	14	294	-16	+11	24	0	-10	+12	-11	+10	-10	+09		
41001	1	1	8	146	-08	+06	9	0	-07	+06	-07	+05	-09	+05		
**RI	1	1	8	146	-08	+06	9	0	-07	+06	-07	+05	-09	+05		
47001	2	0	6	53	-05	+09	6	0	-02	+04	-02	+04	-01	+04		
**VT	2	0	6	53	-05	+09	6	0	-02	+04	-02	+04	-01	+04		
*RG01	16	16	102	1,034	-14	+11	89	0	-10	+10	-09	+09	-09	+10		
31001	7	6	47	334	-10	+12	25	0	-13	+07	-07	+11	-06	+10		
**NJ	7	6	47	334	-10	+12	25	0	-13	+07	-07	+11	-06	+10		
33001	11	11	94	488	-10	+07	169	0	-14	+12	-13	+11	-13	+10		
**NY	11	11	94	488	-10	+07	169	0	-14	+12	-13	+11	-13	+10		
40001	0	1	5	52	-06	+04	6	6	-16	+07	-09	-01	-09	-02	-11	-02
**PR	0	1	5	52	-06	+04	6	6	-16	+07	-09	-01	-09	-02	-11	-02
*RG02	18	18	146	874	-10	+09	200	6	-14	+11	-13	+11	-12	+10	-11	-02
08001	3	1	18	103	-08	+13	9	0	-10	+11	-10	+08	-08	+09		
**DE	3	1	18	103	-08	+13	9	0	-10	+11	-10	+08	-08	+09		
09001	1	1	8	75	-08	+10	8	0	-04	+09	-04	+11	-07	+12		
**DC	1	1	8	75	-08	+10	8	0	-04	+09	-04	+11	-07	+12		
21001	7	2	41	403	-09	+11	46	0	-13	+13	-10	+10	-08	+09		
21003	4	0	13	81	-11	+11	14	0	-15	+17	-15	+18	-16	+17		
21005	3	1	16	152	-07	+06	16	0	-08	+09	-05	+06	-04	+06		
**MD	14	3	70	636	-09	+10	76	0	-13	+13	-10	+11	-09	+10		
39001	18	8	108	643	-13	+12	26	0	-15	+14	-14	+12	-14	+11		
39002	2	2	11	117	-05	+08	37	0	-15	+10	-12	+06	-13	+07		
39003	1	1	10	55	-07	+13	4	0	+00	+04	-04	+05	-02	+03		
**PA	21	11	129	815	-12	+12	67	0	-14	+12	-13	+09	-13	+09		
48001	6	5	32	223	-08	+05	13	13	-07	+13	-05	+08	-04	+05	-04	+05
48002	0	0	16	118	-08	+06	7	7	-06	+10	-04	+08	-02	+05	-03	+04
48003	4	0	16	108	-13	+09	12	0	-03	+05	-06	+08	-06	+06		
48005	0	0	16	118	-08	+06	7	7	-06	+10	-04	+08	-02	+05	-03	+04
**VA	10	5	80	567	-09	+07	39	27	-06	+10	-05	+07	-04	+05	-04	+04
50001	3	1	11	69	-12	+11	11	0	-12	+08	-12	+09	-12	+12		
50002	1	0	4	42	-07	+11	4	0	-15	+09	-09	+07	-09	+07		
**WV	4	1	15	111	-10	+11	15	0	-12	+08	-11	+08	-11	+10		

(continued)

TABLE D-4 (Continued)

AUTOMATED ANALYZERS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION				ACCURACY									
			NO. ANAL	NO. PREC. CHECKS	PR.LIMS LOW	PR.LIMS UP	NO. AUDS	NO. AUDS L4	PROBABILITY LIMITS LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP	LEVEL 4 LOW	LEVEL 4 UP
*RG03	53	22	320	2,307	-10	+10	214	27	-12	+12	-10	+10	-10	+09	-04	+04
01011	3	0	12	60	-13	+10	7	0	-22	+17	-26	+12	-22	+13		
01012	1	2	12	61	-14	+13	4	0	-23	+08	-24	+08	-23	+05		
01013	0	2	8	36	-16	+13	6	0	-17	+18	-18	+31	-14	+27		
01014	0	0	4	20	-13	+19	4	0	-33	+31	-22	+20	-20	+18		
01015	0	0	3	22	-07	+10	3	0	-22	+33	-05	+00	-06	-02		
**AL	4	4	39	199	-13	+13	24	0	-22	+20	-23	+19	-20	+17		
10001	3	0	12	126	-09	+09	6	0	-08	+05	-03	+04	-05	+05		
10003	0	2	8	38	-21	+13	6	0	-05	+06	-08	+09	-06	+08		
10005	0	0	4	24	-15	+11	6	0	+03	+23	+00	+05	-05	+05		
10007	0	0	4	20	-05	+05	5	0	-23	+11	-18	+00	-19	-03		
10011	0	2	8	171	-10	+09	14	6	-17	+15	-12	+10	-12	+07	-05	+08
10012	2	1	12	79	-10	+10	6	0	-30	+24	-26	+16	-25	+15		
10013	1	2	12	89	-08	+10	14	0	-06	+05	-11	+08	-07	+04		
10014	0	0	4	28	-15	+11	6	1	-24	+07	-09	+00	-11	+04		
10015	0	0	2	11	-03	+05	3	0	-09	+14	-07	+11	-03	+09		
10016	0	2	8	87	-08	+13	7	0	-07	+12	-09	+13	-08	+09		
10017	0	2	8	48	-06	+05	7	0	-20	+17	-08	+12	-06	+07		
10018	1	2	9	95	-02	+01	7	0	-09	+08	-09	+05	-13	+07		
**FL	7	13	91	816	-10	+09	87	7	-15	+14	-11	+09	-11	+08	-05	+08
11010	0	4	12	95	-16	+08	4	0	-19	-03	-11	-04	-06	-05		
**GA	0	4	12	95	-16	+08	4	0	-19	-03	-11	-04	-06	-05		
18001	12	0	80	391	-14	+12	54	0	-21	+12	-16	+10	-15	+09		
18002	1	1	8	40	-20	+21	3	0	+05	+05	-06	+06	-02	+03		
18003	0	0	8	615	-13	+11	5	0	-16	+21	-13	+14	-14	+13		
**KY	13	1	96	1,046	-14	+12	62	0	-21	+13	-15	+11	-14	+10		
25100	2	0	25	229	-09	+14	21	0	-08	+10	-06	+04	-07	+03		
**MS	2	0	25	229	-09	+14	21	0	-08	+10	-06	+04	-07	+03		
34001	6	0	44	204	-07	+06	33	0	-10	+13	-08	+06	-08	+07		
34002	1	0	4	12	-06	+10	3	0	-20	+03	-02	+12	+01	+15		
34003	1	2	12	77	-07	+08	25	0	-11	+09	-09	+10	-10	+09		
34004	1	0	3	20	-11	+16	3	0	-18	+19	-03	+06	-11	+05		
**NC	9	2	63	313	-08	+08	64	0	-12	+11	-08	+08	-09	+08		
42001	3	4	28	113	-16	+14	113	0	-15	+13	-09	+09	-09	+08		
**SC	3	4	28	113	-16	+14	113	0	-15	+13	-09	+09	-09	+08		
44001	1	1	15	129	-08	+08	13	0	-17	+06	-11	+06	-10	+04		
44002	0	2	8	63	-07	+07	12	0	-08	+08	-06	+05	-05	+07		
44003	1	1	8	48	-07	+04	12	0	-09	+08	-07	+06	-05	+05		
44004	2	0	9	56	-08	+06	13	0	-07	+06	-03	+03	-06	+05		
44005	0	2	8	67	-06	+06	15	0	-08	+07	-07	+05	-11	+07		
44006	0	0	8	620	-19	+16	4	0	-19	+19	-17	+18	-16	+18		
**TN	4	6	56	983	-15	+14	69	0	-11	+09	-08	+06	-09	+07		
*RG04	42	34	410	3,794	-13	+12	444	7	-15	+13	-11	+09	-11	+09	-05	+08
14001	20	10	117	1,328	-15	+08	30	0	-13	+09	-10	+04	-11	+04		
14003	8	1	28	125	-14	+18	13	0	-10	+14	-10	+08	-12	+06		
**IL	28	11	145	1,453	-15	+09	43	0	-12	+11	-11	+05	-11	+04		

(continued)

TABLE D-4 (Continued)

AUTOMATED ANALYZERS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION NO. ANAL	NO. PREC. CHECKS	PR.LIMS LOW	PR.LIMS UP	ACCURACY NO. AUDS	NO. AUDS L4	PROBABILITY LIMITS LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP	LEVEL 4 LOW	LEVEL 4 UP
15001	2	6	44	215	-10	+11	20	0	-12	+11	-10	+08	-08	+07		
15002	2	0	9	48	-11	+10	10	0	-13	+13	-15	+07	-12	+03		
15003	0	1	5	19	-06	+10	8	0	-08	+08	-07	+08	-07	+08		
15008	2	0	12	69	-11	+13	9	0	-20	+16	-14	+12	-14	+11		
15010	0	0	4	16	-20	+14	2	0	-06	-02	-07	-06	-07	-02		
**IN	6	7	74	367	-11	+11	49	0	-13	+12	-12	+08	-10	+07		
23001	4	7	39	175	-11	+10	8	0	-05	+05	-07	+03	-09	+04		
23002	3	1	16	97	-12	+08	4	0	-15	+12	-06	+08	-06	+02		
**MI	7	8	55	272	-12	+10	12	0	-06	+06	-07	+04	-08	+03		
24001	4	2	28	308	-12	+11	18	0	-13	+17	-09	+09	-07	+05		
**MN	4	2	28	308	-12	+11	18	0	-13	+17	-09	+09	-07	+05		
36001	1	2	12	68	-11	+13	4	0	-16	+15	-13	+04	-13	+00		
36002	3	0	12	60	-14	+15	4	0	-14	+13	-15	+10	-18	+12		
36003	1	0	2	10	-13	+04	4	0	-17	+25	-23	+00	-20	-05		
36005	1	0	1	11	-18	+28	0	0								
36006	0	2	11	50	-08	+07	4	0	-12	+07	-10	+04	-12	+06		
36007	0	2	8	39	-10	+09	4	0	-21	+12	-16	+05	-16	+04		
36008	5	2	27	162	-10	+11	15	0	-09	+10	-07	+06	-06	+04		
36009	2	1	12	69	-13	+12	6	0	-22	+09	-19	+06	-22	+03		
36010	2	2	12	74	-08	+06	4	0	-09	+01	-09	+05	-05	+01		
36012	0	1	7	36	-09	+04	4	0	-15	+12	-18	+10	-17	+10		
36014	0	0	1	5	-07	+14	2	0	-15	+17	-12	+09	-11	+08		
36015	0	2	8	46	-13	+12	4	0	-01	+04	-08	+05	-09	+06		
36016	0	1	4	22	-08	+09	4	0	+00	+12	-10	+07	-04	+01		
**OH	15	15	117	652	-11	+11	59	0	-13	+12	-13	+07	-14	+06		
51001	16	4	58	336	-11	+11	21	0	-11	+05	-07	+06	-07	+09		
**WI	16	4	58	336	-11	+11	21	0	-11	+05	-07	+06	-07	+09		
*RG05	76	47	477	3,388	-13	+10	202	0	-13	+11	-11	+07	-11	+07		
04001	0	2	8	52	-02	+02	8	0	-03	+02	-04	+02	-04	+04		
**AR	0	2	8	52	-02	+02	8	0	-03	+02	-04	+02	-04	+04		
19001	10	6	56	343	-10	+09	17	0	-16	+13	-10	+10	-10	+11		
**LA	10	6	56	343	-10	+09	17	0	-16	+13	-10	+10	-10	+11		
32001	3	0	12	64	-13	+09	8	0	-12	+14	-10	+07	-10	+06		
32002	3	2	20	55	-12	+03	18	0	-06	+05	-05	+03	-07	+03		
**NM	6	2	32	119	-13	+07	26	0	-08	+08	-07	+04	-08	+04		
37101	2	1	12	68	-16	+08	4	0	-13	+11	-12	+08	-11	+06		
37102	0	1	4	19	-18	+07	4	0	-30	+09	-05	+04	+01	+05		
37103	1	2	12	66	-08	+04	12	0	-16	+21	-13	+20	-13	+21		
**OK	3	4	28	153	-14	+07	20	0	-20	+20	-13	+17	-12	+18		
45001	9	13	100	5,019	-06	+10	169	0	-17	+27	-14	+18	-17	+19		
45002	2	1	16	123	-10	+07	17	0	-15	+09	-12	+09	-13	+11		
45006	6	0	23	144	-14	+06	20	0	-08	+10	-10	+11	-12	+10		
**TX	17	14	139	5,286	-07	+10	206	0	-17	+25	-13	+17	-16	+18		
*RG06	36	28	263	5,953	-08	+10	277	0	-17	+22	-13	+15	-15	+16		

(continued)

TABLE D-4 (Continued)

AUTOMATED ANALYZERS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION				ACCURACY									
			NO. ANAL	NO. PREC. CHECKS	PR.LIMS		NO. AUDS	NO. AUDS L4	PROBABILITY LIMITS							
									LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
					LOW	UP			LOW	UP	LOW	UP	LOW	UP	LOW	UP
16001	1	2	12	114	-17	+32	7	0	-06	+22	-04	+04	-06	+02		
16002	2	0	5	39	-06	+07	15	0	-05	+13	-05	+06	-10	+04		
16003	1	1	8	38	-08	+07	7	0	-16	+10	-06	+07	-10	+13		
**IA	4	3	25	191	-16	+25	29	0	-10	+16	-05	+06	-09	+06		
17001	1	2	12	65	-18	+16	6	0	-32	+19	-12	+10	-09	+11		
**KS	1	2	12	65	-18	+16	6	0	-32	+19	-12	+10	-09	+11		
26001	3	2	25	141	-12	+09	8	0	-13	+10	-10	+04	-10	+04		
26002	3	1	14	71	-08	+06	5	0	-02	+08	+01	+07	+00	+05		
26003	5	0	10	62	-22	+22	6	0	-41	+26	-24	+15	-24	+13		
26004	1	1	8	50	-12	+17	6	0	-17	+03	-12	+04	-10	+07		
26005	1	0	4	21	-15	+12	6	0	-20	+31	-14	+17	-09	+05		
**MO	13	4	61	345	-14	+13	31	0	-21	+19	-13	+11	-12	+08		
28002	1	0	4	31	-14	+12	6	0	-14	+13	-05	+07	-01	+01		
28003	1	2	9	55	-10	+09	4	0	-13	+11	-06	+05	-15	+25		
**NB	2	2	13	86	-11	+10	10	0	-13	+12	-05	+06	-11	+15		
*RG07	20	11	111	687	-16	+17	76	0	-17	+18	-09	+09	-11	+09		
06001	8	4	43	242	-15	+14	12	0	-22	+13	-20	+11	-18	+09		
**CO	8	4	43	242	-15	+14	12	0	-22	+13	-20	+11	-18	+09		
35001	2	0	10	50	-12	+11	9	0	-14	+14	-19	+15	-21	+15		
**ND	2	0	10	50	-12	+11	9	0	-14	+14	-19	+15	-21	+15		
46001	4	2	20	200	-12	+12	20	13	-11	+13	-11	+12	-12	+12	-08	+04
**UT	4	2	20	200	-12	+12	20	13	-11	+13	-11	+12	-12	+12	-08	+04
*RG08	14	6	73	492	-14	+13	41	13	-16	+14	-16	+13	-16	+12	-08	+04
03100	4	0	8	42	-15	+17	3	3	-07	+04	-05	+02	-03	+02	-02	+02
03200	6	2	27	90	-12	+03	5	0	-26	+12	-18	+07	-15	+05		
03300	3	2	20	115	-07	+06	6	0	-01	+09	-02	+10	+00	+11		
**AZ	13	4	55	247	-12	+09	14	3	-17	+14	-13	+10	-12	+11	-02	+02
05001	51	7	137	742	-12	+13	66	59	-21	+08	-16	+06	-14	+05	-13	+05
05004	17	4	76	480	-06	+06	41	41	-13	+08	-08	+05	-09	+05	-10	+06
05036	5	2	28	157	-12	+06	9	8	-25	+24	-08	+04	-04	+02	-06	+03
05061	25	5	120	646	-18	+07	32	32	-21	+15	-05	+09	-04	+08	-03	+08
**CA	98	18	361	2,025	-14	+10	148	140	-20	+11	-13	+08	-11	+07	-11	+07
12120	0	1	3	30	-10	+05	155	0	-24	+09	-07	+04	-04	+04		
**HI	0	1	3	30	-10	+05	155	0	-24	+09	-07	+04	-04	+04		
29100	2	0	?	?	???	???	?	?	???	???	???	???	???	???		
29200	0	2	8	56	-11	+05	8	8	-11	+08	-06	+04	-09	+08	-08	+07
29300	2	1	11	68	-05	+04	3	1	+00	+01	-01	+07	-01	+02	-01	+01
**NV	4	3	19	124	-08	+05	11	9	-09	+07	-06	+06	-08	+07	-07	+06
*RG09	115	26	438	2,426	-14	+10	328	152	-22	+10	-10	+07	-08	+06	-11	+07
38001	3	2	25	157	-15	+12	33	10	-20	+26	-16	+19	-17	+19	-11	+06
**OR	3	2	25	157	-15	+12	33	10	-20	+26	-16	+19	-17	+19	-11	+06
49001	4	5	26	230	-06	+14	16	0	-07	+04	-06	+04	-06	+04		

(continued)

TABLE D-4 (Continued)

AUTOMATED ANALYZERS

REPORTING			PRECISION				ACCURACY									
ORGAN				NO.				NO.	PROBABILITY LIMITS							
STATE	NO.	NO.	NO.	PREC.	PR.LIMS		NO.	AUDS	LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
REGION	SLAM	NAMS	ANAL	CHECKS	LOW	UP	AUDS	L4	LOW	UP	LOW	UP	LOW	UP	LOW	UP
**WA	4	5	26	230	-06	+14	16	0	-07	+04	-06	+04	-06	+04		
*RG10	7	7	51	387	-11	+14	49	10	-18	+21	-15	+16	-14	+15	-11	+06
NATION	397	215	2,391	21,342	-12	+11	1,920	215	-17	+15	-12	+10	-12	+10	-10	+06

Explanation of Column Heading Abbreviations for Tables D-5, D-6, D-7, D-8
(Manual Methods)

Column		
No.	Heading abbreviation	Explanation
1	REPORTING ORGAN.	Reporting organization number
	STATE	Two letter state abbreviation
	REGION	EPA regional office number (RGO#)
2	NO. SLAM	Number of SLAMS sites, not including NAMS
3	NO. NAMS	Number of NAMS sites
4	NO. OF SAMPLERS	Number of samplers (sites)
5	NO. COLL. SITES	Number of collocated sites
6	COLL. SAMPS < LIM	Number of paired data sets from collocated samplers with either result less than the tabulated values on Form 1: TSP: $20\ \mu g/m^3$ SO_2: $40\ \mu g/m^3$ NO_2: $30\ \mu g/m^3$ Pb: $0.15\ \mu g/m^3$
	PR. LIMS	Probability limits
7	LOW	Lower probability limits
8	UP	Upper probability limits
9	NO. VAL COLL PAIRS	Number of valid collocated data pairs
10	NO. AUDS	Number of accuracy audits performed and reported
	LEVEL 1	
11	LOW	Lower probability limits
12	UP	Upper probability limits
	LEVEL 2	
13	LOW	Lower probability limits
14	UP	Upper probability limits
	LEVEL 3	
15	LOW	Lower probability limits
16	UP	Upper probability limits

TABLE D-5. TSP PRECISION AND ACCURACY ANNUAL VALUES FOR REPORTING ORGANIZATIONS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	MANUAL METHODS												
			PRECISION						ACCURACY						
			NO.OF SAMP- LERS	NO. COLL. SITES	COLL. SAMPS <LIM	PR.LIMS		NO.VAL COLL. PAIRS	NO. AUDS	PROBABILITY LIMITS					
										LEVEL 1		LEVEL 2		LEVEL 3	
						LOW	UP			LOW	UP	LOW	UP	LOW	UP
07001	18	23	167	12	5	-10	+21	168	84			-06	+06		
**CT	18	23	167	12	5	-10	+21	168	84			-06	+06		
20001	9	1	40	15	6	-11	+13	137	61			-07	+09		
**ME	9	1	40	15	6	-11	+13	137	61			-07	+09		
22001	7	17	93	8	1	-14	+21	100	48			-06	+12		
**MA	7	17	93	8	1	-14	+21	100	48			-06	+12		
30001	14	1	65	7	0	-11	+10	92	44			-05	+06		
**NH	14	1	65	7	0	-11	+10	92	44			-05	+06		
41001	6	6	50	9	0	-13	+14	113	44			-08	+04		
**RI	6	6	50	9	0	-13	+14	113	44			-08	+04		
47001	5	1	24	8	1	-06	+09	102	33			-06	+04		
**VT	5	1	24	8	1	-06	+09	102	33			-06	+04		
*RG01	59	49	439	59	13	-12	+16	712	314			-07	+08		
31001	15	10	66	6	2	-09	+13	85	31			-09	+06		
**NJ	15	10	66	6	2	-09	+13	85	31			-09	+06		
33001	99	27	764	65	38	-15	+15	870	222			-02	+06		
**NY	99	27	764	65	38	-15	+15	870	222			-02	+06		
40001	7	7	55	8	0	-13	+06	68	26			-09	+03		
**PR	7	7	55	8	0	-13	+06	68	26			-09	+03		
55001	5	0	?	?	?	???	???	?	?			???	???		
**VI	5	0	?	?	?	???	???	?	?			???	???		
*RG02	126	44	885	79	40	-14	+14	1,023	279			-05	+07		
08001	6	3	36	8	3	-10	+11	113	16			-10	+07		
**DE	6	3	36	8	3	-10	+11	113	16			-10	+07		
09001	5	4	36	8	1	-07	+06	98	33			-10	+07		
**DC	5	4	36	8	1	-07	+06	98	33			-10	+07		
21001	14	6	115	8	3	-08	+11	100	44			-11	+12		
21002	5	0	26	8	4	-21	+17	73	13			-14	+22		
21003	2	1	22	8	4	-09	+13	100	13			-08	+05		
21005	4	1	26	8	10	-11	+10	113	12			-07	+12		
21006	2	1	29	8	9	-16	+05	104	13			-13	+16		
**MD	27	9	218	40	30	-14	+12	490	95			-11	+14		
39001	63	33	381	12	5	-10	+15	147	106			-06	+11		
39002	11	7	63	10	2	-16	+13	139	206			-05	+06		
39003	11	4	56	12	0	-13	+16	158	16			-09	+07		
**PA	85	44	500	34	7	-13	+15	444	328			-06	+08		
48001	32	17	226	12	4	-08	+10	166	60			-04	+04		
48002	1	1	10	8	5	-05	+06	110	8			-03	+02		
48003	16	0	64	8	5	-09	+10	152	23			-04	+03		
48005	0	2	12	8	9	-14	+19	92	9			-03	+13		

(continued)

TABLE D-5 (Continued)

MANUAL METHODS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION						ACCURACY						
			NO.OF SAMP-LERS	NO. COLL. SITES	COLL. SAMPS <LIM	PR.LIMS		NO.VAL COLL. PAIRS	NO. AUDS	PROBABILITY LIMITS					
										LEVEL 1		LEVEL 2		LEVEL 3	
						LOW	UP			LOW	UP	LOW	UP	LOW	UP
**VA	49	20	312	36	23	-10	+11	520	100			-05	+05		
50001	12	7	60	8	0	-03	+09	98	16			-06	+07		
50002	7	4	55	8	0	-11	+15	109	20			-05	+08		
**WV	19	11	115	16	0	-08	+13	207	36			-06	+08		
*RG03	191	91	1217	142	64	-12	+13	1,872	608			-07	+09		
01011	26	6	172	12	2	-26	+05	156	44			-06	+08		
01012	8	6	25	8	0	-11	+15	100	360			-04	+04		
01013	3	3	20	8	0	-15	+11	94	8			-02	+05		
01014	7	1	36	8	11	-09	+06	194	8			-05	+05		
01015	9	0	48	8	0	-06	+08	112	13			-12	+11		
01016	0	0	28	4	4	-22	+16	52	6			-04	+08		
**AL	53	16	329	48	17	-18	+12	708	439			-05	+05		
10001	13	0	44	8	11	-11	+17	112	53			-06	+07		
10002	5	0	36	8	0	-22	+34	89	7			-01	+09		
10003	7	1	44	8	0	-09	+08	109	7			-08	+05		
10004	7	0	32	8	1	-15	+08	111	13			-03	+02		
10005	0	0	24	7	7	-11	+14	90	14			-04	+08		
10006	4	0	34	8	1	-14	+14	101	13			-07	+07		
10007	0	0	16	8	10	-14	+13	108	6			-06	+05		
10011	7	4	80	12	0	-07	+08	139	65			-05	+12		
10012	15	2	68	8	0	-13	+08	106	80			-09	+16		
10013	5	2	36	8	2	-22	+22	103	36			-04	+03		
10014	2	0	32	8	1	-19	+22	90	17			-14	+22		
10015	2	0	16	8	2	-15	+15	104	6			-06	+05		
10016	9	0	39	8	2	-06	+10	107	12			-04	+02		
10017	7	2	48	8	2	-10	+14	104	14			-07	+10		
10018	10	3	52	8	0	-09	+12	106	98			-04	+06		
**FL	93	14	601	123	39	-14	+16	1,579	441			-07	+11		
11010	39	11	196	16	3	-11	+14	201	50			-07	+11		
**GA	39	11	196	16	3	-11	+14	201	50			-07	+11		
18001	40	6	232	32	11	-10	+16	426	101			-05	+14		
18002	9	6	64	4	0	-11	+14	59	43			-07	+08		
18003	0	0	28	4	2	-09	+15	48	12			-16	+24		
**KY	49	12	324	40	13	-10	+16	533	156			-07	+14		
25100	19	4	113	12	5	-19	+18	156	29			-07	+09		
**MS	19	4	113	12	5	-19	+18	156	29			-07	+09		
34001	50	4	204	32	26	-13	+13	314	227			-06	+04		
34002	8	2	40	8	3	-07	+12	102	15			-09	+08		
34003	11	2	52	8	6	-09	+10	109	43			-05	+08		
34004	5	1	24	8	5	-26	+43	94	8			-04	+13		
**NC	74	9	320	56	40	-16	+19	619	293			-06	+06		
42001	10	8	183	11	4	-07	+13	121	228			-02	+02		
**SC	10	8	183	11	4	-07	+13	121	228			-02	+02		
44001	22	3	170	12	3	-08	+04	166	183			-06	+11		
44002	5	6	44	8	0	-10	+14	98	52			-04	+08		
44003	7	6	60	8	0	-05	+06	113	90			-09	+14		
44004	7	2	36	8	0	-06	+08	92	54			-06	+07		

(continued)

TABLE D-5 (Continued)

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	MANUAL METHODS ------PRECISION------ NO.OF SAMP-LERS	NO. COLL. SITES	COLL. SAMPS <LIM	PR.LIMS LOW	PR.LIMS UP	NO.VAL COLL. PAIRS	------ACCURACY------ NO. AUDS	--PROBABILITY LIMITS--- LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP
44005	7	4	50	8	0	-08	+05	113	46			-07	+06		
44006	0	0	95	4	0	-16	+21	56	46			-06	+08		
**TN	48	21	455	48	3	-10	+09	638	471			-07	+10		
*RG04	385	95	2521	354	124	-14	+15	4,555	2,107			-07	+09		
14001	47	21	300	16	0	-20	+19	216	69			-08	+06		
14002	9	4	68	8	0	-15	+17	113	15			-13	+12		
14003	14	1	63	8	0	-10	+11	109	20			-08	+05		
**IL	70	26	431	32	0	-17	+17	438	104			-09	+07		
15001	34	12	152	8	2	-07	+07	111	36			-06	+06		
15002	0	4	20	8	3	-12	+12	101	10			-02	+06		
15003	4	2	32	8	10	-18	+16	114	16			-07	+04		
15005	6	1	32	8	7	-13	+09	112	10			-01	+04		
15008	12	2	66	8	0	-11	+17	110	16			-04	+06		
15009	0	0	20	8	14	-10	+03	108	8			-05	+06		
15010	8	0	24	6	15	-15	+11	79	8			-06	+05		
15100	0	0	88	10	7	-20	+21	108	22			-05	+05		
**IN	64	21	434	64	58	-14	+13	843	126			-05	+06		
23001	40	16	224	16	16	-13	+16	186	59			-06	+08		
23002	14	4	79	6	0	-06	+15	78	21			-03	+06		
**MI	54	20	303	22	16	-11	+16	264	80			-05	+08		
24001	33	11	16	8	5	-13	+13	111	117			-07	+05		
**MN	33	11	16	8	5	-13	+13	111	117			-07	+05		
36001	9	4	64	8	2	-06	+10	115	17			-09	+03		
36002	8	3	44	8	0	-10	+17	79	11			-12	-02		
36003	16	2	87	12	7	-15	+12	148	25			-06	+06		
36004	18	0	72	8	0	-36	+31	26	20			-07	+16		
36005	5	0	21	8	9	-15	+25	99	11			-11	+07		
36006	8	4	58	8	0	-08	+06	116	16			-07	+07		
36007	6	5	60	8	3	-09	+10	107	14			-03	+02		
36008	28	7	136	8	0	-07	+09	118	37			-09	+07		
36009	17	5	118	23	0	-21	+22	318	36			-15	+08		
36010	13	7	77	8	6	-10	+07	110	27			-14	+08		
36012	11	1	37	8	10	-11	+10	100	16			-09	+05		
36013	17	1	74	8	2	-12	+09	110	19			-13	+05		
36014	20	2	51	4	0	-17	+18	59	25			-21	+15		
36015	9	4	16	8	3	-16	+18	101	17			-09	+11		
36016	11	4	60	8	0	-08	+11	106	19			-05	+04		
**OH	196	49	975	135	42	-16	+17	1,712	310			-12	+09		
51001	62	16	16	8	17	-11	+09	98	84			-04	+95		
**WI	62	16	16	8	17	-11	+09	98	84			-04	+05		
*RG05	479	143	2175	269	138	-15	+16	3,466	821			-09	+08		
04002	23	3	116	12	162	-28	+28	170	116			-06	+04		
**AR	23	3	116	12	162	-28	+28	170	116			-06	+04		
19001	24	7	118	8	0	-06	+06	105	128			-06	+06		
**LA	24	7	118	8	0	-06	+06	105	128			-06	+06		
32001	38	0	186	16	15	-15	+18	232	201			-06	+07		

(continued)

TABLE D-5 (Continued)

MANUAL METHODS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION						ACCURACY						
										--PROBABILITY LIMITS---					
			NO.OF SAMPLERS	NO. COLL. SITES	COLL. SAMPS <LIM	PR.LIMS LOW	PR.LIMS UP	NO.VAL COLL. PAIRS	NO. AUDS	LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP
32002	7	4	32	7	7	-15	+05	85	24			-09	+06		
**NM	45	4	218	23	22	-16	+16	317	225			-06	+07		
37101	17	2	64	8	2	-16	+34	91	15			-08	+14		
37102	4	3	49	8	3	-08	+07	111	14			-09	+06		
37103	5	3	48	8	0	-07	+03	124	22			-11	+10		
**OK	26	8	161	24	5	-16	+19	326	51			-10	+10		
45001	10	30	359	16	3	-24	+25	180	613			-07	+07		
45002	3	4	33	8	0	-18	+17	106	67			-10	+15		
45003	7	2	89	8	0	-20	+18	107	92			-07	+09		
45004	2	2	28	8	2	-27	+18	103	25			-16	+21		
45005	3	0	18	4	0	-09	+08	35	23			-04	+05		
45006	4	4	97	8	0	-17	+18	104	60			-04	+08		
45007	1	2	30	8	0	-02	+03	120	38			-03	+00		
**TX	30	44	654	60	5	-20	+18	755	918			-08	+09		
*RG06	148	66	1267	127	194	-19	+19	1,673	1,438			-07	+08		
16001	6	3	37	6	4	-53	+56	91	16			-09	+09		
16002	2	3	22	8	0	-09	+08	0	23			-07	-03		
16003	30	8	172	9	3	-17	+13	105	48			-02	+08		
**IA	38	14	231	23	7	-31	+31	196	87			-08	+08		
17001	12	8	80	10	2	-19	+30	118	18			-12	+09		
**KS	12	8	80	10	2	-19	+30	118	18			-12	+09		
26001	14	3	8	8	0	-20	+13	0	18			-06	+02		
26002	4	3	8	8	2	-26	+36	0	12			-10	+06		
26003	5	3	8	8	1	-23	+24	0	10			-07	+05		
26004	4	3	8	8	0	-07	+07	0	9			-06	+05		
26005	6	2	8	8	4	-01	+07	0	10			-10	+06		
**MO	33	14	40	40	7	-19	+21	0	59			-08	+04		
28001	19	0	35	10	5	-09	+27	125	21			-28	+26		
28002	4	3	24	6	0	-08	+12	86	8			-36	+15		
28003	9	3	78	8	3	-09	+10	114	21			-09	+07		
**NB	32	6	137	24	8	-11	+20	325	50			-24	+19		
*RG07	115	42	488	97	24	-21	+25	639	214			-14	+11		
06001	48	12	258	8	1	-32	+35	170	103			-06	+06		
**CO	48	12	258	8	1	-32	+35	170	103			-06	+06		
27001	19	1	24	12	10	-20	+21	170	82			-06	+09		
27002	4	0	8	4	0	-09	+13	47	10			-06	+07		
27003	3	1	8	4	4	-12	+15	55	14			-16	+16		
27004	5	0	16	8	19	-14	+15	110	16			-09	+08		
**MT	31	2	56	28	33	-16	+18	382	122			-08	+10		
35001	18	1	80	8	9	-15	+13	104	20			-06	+01		
**ND	18	1	80	8	9	-15	+13	104	20			-06	+01		
43001	21	2	90	8	9	-09	+09	90	86			-02	+03		
**SD	21	2	90	8	9	-09	+09	90	86			-02	+03		
46001	5	8	58	8	3	-12	+08	104	12			-05	+02		

(continued)

TABLE D-5 (Continued)

MANUAL METHODS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION						ACCURACY						
			NO.OF SAMP-LERS	NO. COLL. SITES	COLL. SAMPS <LIM	PR.LIMS LOW	PR.LIMS UP	NO.VAL COLL. PAIRS	NO. AUDS	PROBABILITY LIMITS LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP
**UT	5	8	58	8	3	-12	+08	104	12			-05	+02		
52001	12	1	49	12	21	-15	+11	138	21			-07	+06		
**WY	12	1	49	12	21	-15	+11	138	21			-07	+06		
*RG08	135	26	591	72	76	-19	+19	988	364			-07	+07		
03100	23	0	97	6	0	-21	+17	67	28			-15	+10		
03200	3	5	31	8	0	-12	+11	91	15			-09	+07		
03300	8	4	16	8	0	-06	+13	78	16			-11	+10		
**AZ	34	9	144	22	0	-13	+15	236	59			-12	+09		
05001	50	23	189	38	25	-18	+20	429	78			-12	+11		
05004	4	9	60	8	7	-08	+05	113	43			-06	+05		
05036	4	3	30	8	4	-04	+12	120	9			-06	+10		
05061	15	10	125	14	3	-12	+08	178	34			-12	+10		
**CA	73	45	404	68	39	-15	+16	840	164			-11	+09		
12120	9	2	44	8	5	-16	+09	91	23			-06	+03		
**HI	9	2	44	8	5	-16	+09	91	23			-06	+03		
29100	12	0	24	2	1	-53	+40	22	0						
29200	11	2	58	8	0	-09	+07	103	64			-08	+05		
29300	8	3	23	8	0	-05	+07	28	16			-02	+04		
**NV	31	5	105	18	1	-19	+17	153	80			-08	+05		
54100	4	0	?	?	?	???	???	?	?			???	???		
**GU	4	0	?	?	?	???	???	?	?			???	???		
*RG09	151	61	697	116	45	-15	+15	1,320	326			-10	+08		
02020	10	3	33	7	4	-24	+16	0	15			-14	+06		
**AK	10	3	33	7	4	-24	+16	0	15			-14	+06		
13001	16	2	71	12	9	-17	+15	143	59			-06	+05		
**ID	16	2	71	12	9	-17	+15	143	59			-06	+05		
38001	27	9	148	24	34	-07	+09	316	397			-05	+06		
**OR	27	9	148	24	34	-07	+09	316	397			-05	+06		
49001	23	13	114	11	1	-10	+09	109	38			-05	+09		
**WA	23	13	114	11	1	-10	+09	109	38			-05	+09		
*RG10	76	27	366	54	48	-13	+13	568	509			-06	+06		
NATION	1865	644	10646	1,369	766	-16	+17	16,816	6,980			-08	+08		

TABLE D-6. PB PRECISION AND ACCURACY ANNUAL VALUES FOR REPORTING ORGANIZATIONS

MANUAL METHODS

REPORTING ORGAN STATE REGION			PRECISION						ACCURACY						
										PROBABILITY LIMITS					
	NO. SLAM	NO. NAMS	NO.OF SAMPLERS	NO. COLL. SITES	COLL. SAMPS <LIM	PR.LIMS LOW	PR.LIMS UP	NO.VAL COLL. PAIRS	NO. AUDS	LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP
07001	16	0	64	8	0	-15	+12	22	15	-06	+07	-04	+04		
**CT	16	0	64	8	0	-15	+12	22	15	-06	+07	-04	+04		
20001	2	0	18	6	4	-08	+07	39	16	-06	+09	-07	+02		
**ME	2	0	18	6	4	-08	+07	39	16	-06	+09	-07	+02		
22001	2	4	18	8	2	-11	+12	51	38	-05	+04	-05	+04		
**MA	2	4	18	8	2	-11	+12	51	38	-05	+04	-05	+04		
30001	7	0	30	0	0	-12	+13	12	12	-13	+08	-06	+04		
**NH	7	0	30	0	0	-12	+13	12	12	-13	+08	-06	+04		
41001	2	2	18	4	0	-30	+18	38	23	-12	+09	-12	+11		
**RI	2	2	18	4	0	-30	+18	38	23	-12	+09	-12	+11		
*RG01	29	6	148	26	6	-17	+14	162	104	-08	+07	-08	+06		
31001	6	2	24	0	0	-15	+21	30	14	-03	+11	-02	+11		
**NJ	6	2	24	0	0	-15	+21	30	14	-03	+11	-02	+11		
33001	7	6	48	0	3	-06	+07	48	34	-14	+10	-16	+15		
**NY	7	6	48	0	3	-06	+07	48	34	-14	+10	-16	+15		
40001	2	3	20	4	0	-04	+06	36	6	-14	+09	-10	+03		
**PR	2	3	20	4	0	-04	+06	36	6	-14	+09	-10	+03		
*RG02	15	11	92	4	3	-09	+11	114	54	-12	+12	-14	+14		
08001	2	0	8	4	1	-10	+12	53	8	-18	+14	-17	+05		
**DE	2	0	8	4	1	-10	+12	53	8	-18	+14	-17	+05		
09001	0	2	8	4	11	-12	+11	54	14	-09	+03	-09	+05		
**DC	0	2	8	4	11	-12	+11	54	14	-09	+03	-09	+05		
21001	4	2	24	8	58	-09	+09	110	33	-14	+11	-12	+02		
**MD	4	2	24	8	58	-09	+09	110	33	-14	+11	-12	+02		
39001	5	0	116	6	70	-23	+29	160	24	-06	+07	-11	+06		
39002	1	2	58	11	47	-28	+21	104	14	-21	+15	-51	+03		
39003	3	2	20	4	3	-19	+18	60	9			-06	+03		
**PA	9	4	194	21	120	-25	+26	324	47	-13	+11	-25	+14		
48001	0	2	8	4	17	-14	+13	37	12	-13	+09	-05	+06		
48003	3	0	12	4	6	-11	+14	79	30	-08	+09	-02	+06		
**VA	3	2	20	8	23	-12	+14	116	42	-09	+09	-03	+06		
50001	5	0	56	10	12	-08	+12	142	39	-01	+08	-07	+04		
**WV	5	0	56	10	12	-08	+12	142	39	-01	+08	-07	+04		
*RG03	23	10	310	55	225	-17	+19	799	183	-11	+11	-15	+10		
01011	1	0	4	0	5	-11	+11	47	0						
01012	0	0	14	7	9	-14	+13	68	12	-06	-01	-02	+02		
01013	2	2	0	0	0			0	0						
01014	0	0	8	2	21	-06	+13	33	15	-08	+11	-09	+07		
**AL	3	2	26	9	35	-12	+13	148	27	-09	+08	-07	+06		

(continued)

TABLE D-6 (Continued)

MANUAL METHODS

REPORTING			PRECISION						ACCURACY						
										PROBABILITY LIMITS					
ORGAN STATE REGION	NO. SLAM	NO. NAMS	NO.OF SAMPLERS	NO. COLL. SITES	COLL. SAMPS <LIM	PR.LIMS LOW	PR.LIMS UP	NO.VAL COLL. PAIRS	NO. AUDS	LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP
10011	0	2	8	2	0	-03	+16	37	12	-03	+10	-04	+04		
10012	0	0	36	0	2	-27	+29	54	12	-15	+00	-11	+00		
10013	0	0	8	0	1	-19	+18	56	11	-03	+09	-05	+12		
10017	0	2	14	0	9	-26	+30	41	14	-06	+08	-07	+07		
10018	0	2	44	0	11	-43	+37	117	12	-08	+03	-02	+01		
**FL	0	6	110	2	23	-30	+31	305	61	-11	+10	-09	+08		
11010	0	2	3	3	0	-02	+04	9	9	-10	+00	-04	+01		
**GA	0	2	3	3	0	-02	+04	9	9	-10	+00	-04	+01		
18001	0	0	20	0	2	-21	+23	12	12	-15	+24	-14	+09		
18002	0	2	6	1	3	-06	+11	9	12	-07	+14	-13	+14		
**KY	0	2	26	1	5	-12	+17	21	24	-12	+19	-14	+11		
25100	0	0	40	1	7	-39	+37	24	17	-16	+21	-13	+15		
**MS	0	0	40	1	7	-39	+37	24	17	-16	+21	-13	+15		
42001	0	0	12	5	13	-21	+16	29	17	-03	+09	-03	+05		
**SC	0	0	12	5	13	-21	+16	29	17	-03	+09	-03	+05		
44001	1	0	4	0	4	-44	+52	44	27	-27	+36	-14	+19		
44002	0	2	8	0	2	-26	+25	52	12	-17	+17	-15	+11		
44003	0	0	60	8	1	-06	+06	86	60	-07	+03	-05	+03		
**TN	1	2	72	8	7	-27	+28	182	99	-18	+19	-11	+11		
*RG04	4	14	289	29	90	-26	+27	718	254	-14	+15	-10	+09		
14001	8	0	32	4	0	-10	+11	60	12	-07	+14	-06	+08		
14002	1	2	68	4	2	-09	+07	60	12	-08	+15	-04	+12		
14003	1	0	63	7	0	-34	+38	82	12	-06	+12	-10	+09		
**IL	10	2	163	15	2	-23	+25	202	36	-07	+13	-07	+10		
15001	7	2	68	8	62	-14	+20	92	17			-10	+10		
15008	1	2	?	?	?	???	???	?	?	???	???	???	???		
**IN	8	4	68	8	62	-14	+20	92	17			-10	+10		
23001	9	0	36	8	1	-13	+10	49	50	-08	+07	-08	+04		
23002	6	2	4	2	0	-04	+05	52	21	-03	+05	-03	+04		
**MI	15	2	40	10	1	-09	+08	101	71	-07	+07	-08	+05		
24001	5	2	4	4	2	-09	+03	16	12	-07	+04	-06	+04		
**MN	5	2	4	4	2	-09	+03	16	12	-07	+04	-06	+04		
36001	0	2	8	4	1	-06	+05	29	27	-12	+07	-05	+02		
36006	0	1	8	4	1	-06	+05	29	27	-12	+07	-05	+02		
36008	0	2	8	4	1	-06	+05	29	27	-12	+07	-05	+02		
36009	0	2	8	4	1	-06	+05	29	27	-12	+07	-05	+02		
36010	0	2	8	4	1	-06	+05	29	27	-10	+08	-05	+02		
**OH	0	9	40	20	5	-06	+05	145	135	-11	+07	-05	+02		
51001	0	2	4	4	6	-08	+09	51	24	-02	+02	-03	+02		
**WI	0	2	4	4	6	-08	+09	51	24	-02	+02	-03	+02		
*RG05	38	21	319	61	78	-16	+17	607	295	-10	+08	-07	+05		
04002	2	0	8	4	23	-13	+11	23	23	-29	+48	-04	+19		

(continued)

TABLE D-6 (Continued)

MANUAL METHODS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION						ACCURACY						
										PROBABILITY LIMITS					
			NO.OF SAMPLERS	NO. COLL. SITES	COLL. SAMPS <LIM	PR.LIMS		NO.VAL COLL. PAIRS	NO. AUDS	LEVEL 1		LEVEL 2		LEVEL 3	
						LOW	UP			LOW	UP	LOW	UP	LOW	UP
**AR	2	0	8	4	23	-13	+11	23	23	-29	+48	-04	+19		
19001	2	2	?	?	?	???	???	?	?	???	???	???	???		
**LA	2	2	?	?	?	???	???	?	?	???	???	???	???		
32001	2	0	8	6	17	-10	+09	96	30	-07	+04	-04	+05		
32002	0	2	8	4	5	-17	+20	81	14	-09	+05	-03	+02		
**NM	2	2	16	10	22	-14	+15	177	44	-07	+04	-04	+04		
37101	0	1	4	0	31	-27	+35	44	10	-07	+05	-08	+03		
37102	1	1	8	0	1	-12	+11	59	12	-15	+05	-09	+03		
37103	2	0	10	0	0	-13	+14	31	24	-03	+06	-04	+07		
**OK	3	2	22	0	32	-20	+22	134	46	-09	+07	-07	+06		
45001	7	8	73	43	0	-22	+25	72	10	-17	+17	-08	+03		
45002	1	2	7	0	0	-12	+14	118	24	-11	+03	-16	+03		
45003	7	0	25	4	0	-06	+05	73	12	-16	+12	-06	+08		
45006	0	0	8	4	3	-18	+19	48	5	+00	+08	-03	+03		
**TX	15	10	113	51	3	-15	+16	311	51	-14	+10	-13	+07		
*RG06	24	16	159	65	80	-16	+17	645	164	-18	+18	-11	+10		
16003	2	0	16	5	65	-14	+16	43	24	-22	+20	-08	+10		
**IA	2	0	16	5	65	-14	+16	43	24	-22	+20	-08	+10		
17001	1	1	8	4	27	-53	+57	47	22	-21	+11	-22	+01		
**KS	1	1	8	4	27	-53	+57	47	22	-21	+11	-22	+01		
26001	1	0	2	0	0	-13	+17	0	12	-08	+01	-08	-06		
26002	0	1	4	0	0	-14	+21	0	39	-03	+05	-02	+05		
26003	1	1	0	0	0			0	0						
26004	1	1	6	2	4	-46	+48	0	3	-10	-01	-06	-01		
**MO	3	3	12	2	4	-24	+30	0	54	-04	+04	-06	+05		
28003	2	2	27	4	16	-12	+09	56	35	-21	+10	-08	+10		
**NB	2	2	27	4	16	-12	+09	56	35	-21	+10	-08	+10		
*RG07	8	6	63	15	112	-28	+31	146	135	-14	+10	-12	+09		
06001	5	2	37	3	49	-25	+30	82	15	-09	+12	-05	+08		
**CO	5	2	37	3	49	-25	+30	82	15	-09	+12	-05	+08		
27001	4	0	8	4	0	-21	+29	64	15	-05	+09				
**MT	4	0	8	4	0	-21	+29	64	15	-05	+09				
46001	3	2	20	4	2	-29	+48	59	10	-10	+08	-21	+10		
**UT	3	2	20	4	2	-29	+48	59	10	-10	+08	-21	+10		
*RG08	12	4	65	11	51	-26	+36	205	40	-08	+10	-12	+11		
03100	10	0	40	3	2	-06	+06	43	23	-08	+09	-06	+05		
03200	1	5	25	8	0	-07	+07	79	15	-05	+09	-01	+07		
03300	2	0	1	0	0	-03	+03	0	6	-13	+10	-02	+05		
**AZ	13	5	66	11	2	-07	+06	122	44	-08	+09	-05	+06		
05001	22	2	52	10	3	-23	+22	115	11			-16	+13		
05004	9	4	60	4	8	-06	+06	52	12	-09	+05	-09	-02		

(continued)

TABLE D-6 (Continued)

MANUAL METHODS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION						ACCURACY						
										PROBABILITY LIMITS					
										LEVEL 1		LEVEL 2		LEVEL 3	
			NO.OF SAMP-LERS	NO. COLL. SITES	COLL. SAMPS <LIM	PR.LIMS LOW	PR.LIMS UP	NO.VAL COLL. PAIRS	NO. AUDS	LOW	UP	LOW	UP	LOW	UP
05036	1	2	?	?	?	???	???	?	?	???	???	???	???		
05061	19	4	125	0	2	-06	+03	53	12	-17	+14	-03	+07		
**CA	51	12	237	14	13	-17	+16	220	35	-13	+10	-12	+09		
29300	0	2	?	?	?	???	???	?	?	???	???	???	???		
**NV	0	2	?	?	?	???	???	?	?	???	???	???	???		
*RG09	64	19	303	25	15	-14	+13	342	79	-10	+10	-09	+08		
02020	2	0	?	?	?	???	???	?	?	???	???	???	???		
**AK	2	0	?	?	?	???	???	?	?	???	???	???	???		
13001	5	0	20	4	36	-26	+41	51	13	-28	+24	-12	+19		
**ID	5	0	20	4	36	-26	+41	51	13	-28	+24	-12	+19		
38001	7	2	8	4	0	-05	+08	12	12	-04	+10	-03	+06		
**OR	7	2	8	4	0	-05	+08	12	12	-04	+10	-03	+06		
49001	7	2	26	6	1	-12	+08	84	9	-05	+08				
**WA	7	2	26	6	1	-12	+08	84	9	-05	+08				
*RG10	21	4	54	14	37	-21	+24	147	34	-16	+18	-09	+14		
NATION	238	111	1802	305	697	-20	+22	3,885	1,342	-13	+12	-10	+09		

TABLE D-7. MANUAL SO_2 PRECISION AND ACCURACY ANNUAL VALUES FOR REPORTING ORGANIZATIONS

			MANUAL METHODS												
			PRECISION						ACCURACY						
										PROBABILITY LIMITS					
										LEVEL 1		LEVEL 2		LEVEL 3	
REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	NO.OF SAMPLERS	NO. COLL. SITES	COLL. SAMPS <LIM	PR.LIMS LOW	PR.LIMS UP	NO.VAL COLL. PAIRS	NO. AUDS	LOW	UP	LOW	UP	LOW	UP
10001	3	0	18	6	30	-25	+46	35	12	-13	+10	-06	+05	-06	+05
10004	3	0	28	8	80	-32	+20	81	21	-16	+15	-11	+09	-10	+07
10012	0	0	20	8	23	-36	+41	38	23	-12	+04	-07	+02	-05	+02
10013	0	0	4	4	8	-17	+39	14	7	-11	+00	-07	+00	-06	+00
10014	0	0	18	6	8	-80	+71	10	31	-21	+07	-17	+05	-14	+03
10017	0	0	15	6	16	-21	+12	16	60	-40	+18	-28	+14	-19	+08
**FL	6	0	103	38	165	-36	+36	194	154	-29	+15	-20	+11	-15	+07
18002	0	0	16	2	20	-44	+18	27	30	-04	+07	-02	+05	-01	+04
**KY	0	0	16	2	20	-44	+18	27	30	-04	+07	-02	+05	-01	+04
34003	0	0	36	8	104	-92	+95	104	48	-14	+03	-09	+05	-07	+06
**NC	0	0	36	8	104	-92	+95	104	48	-14	+03	-09	+05	-07	+06
*RG04	6	0	155	48	289	-63	+70	325	232	-25	+14	-17	+11	-13	+08
32001	0	0	6	4	56	-02	+02	57	15	-06	+08	+00	+04	-08	+07
**NM	0	0	6	4	56	-02	+02	57	15	-06	+08	+00	+04	-08	+07
*RG06	0	0	6	4	56	-02	+02	57	15	-06	+08	+00	+04	-08	+07
12120	6	0	24	8	6	-31	+27	7	54	-08	+04	-03	+03	-03	+02
**HI	6	0	24	8	6	-31	+27	7	54	-08	+04	-03	+03	-03	+02
54100	4	0	?	?	?	???	???	?	?	???	???	???	???	???	???
**GU	4	0	?	?	?	???	???	?	?	???	???	???	???	???	???
*RG09	10	0	24	8	6	-31	+27	7	54	-08	+04	-03	+03	-03	+02
NATION	16	0	185	60	351	-56	+60	389	301	-22	+13	-15	+10	-11	+07

TABLE D-8. MANUAL NO_2 PRECISION AND ACCURACY ANNUAL VALUES FOR REPORTING ORGANIZATIONS

MANUAL METHODS

REPORTING ORGAN STATE REGION	NO. SLAM	NO. NAMS	PRECISION						ACCURACY						
			NO.OF SAMP-LERS	NO. COLL. SITES	COLL. SAMPS <LIM	PR.LIMS		NO.VAL COLL. PAIRS	NO. AUDS	PROBABILITY LIMITS					
						LOW	UP			LEVEL 1 LOW	UP	LEVEL 2 LOW	UP	LEVEL 3 LOW	UP
48003	8	0	32	8	21	-18	+15	89	28	-08	+09	+00	+05	-01	+06
**VA	8	0	32	8	21	-18	+15	89	28	-08	+09	+00	+05	-01	+06
*RG03	8	0	32	8	21	-18	+15	89	28	-08	+09	+00	+05	-01	+06
10001	3	0	24	8	70	-30	+43	86	12	-11	+14	-07	+08	-06	+07
10004	0	0	9	6	49	-27	+42	81	9	-03	+09	-03	+06	-02	+07
10012	0	0	20	8	45	-10	+21	104	24	-03	+06	-02	+04	-01	+05
10017	0	0	20	8	46	-09	+08	114	61	-07	+14	-06	+08	-04	+05
**FL	3	0	73	30	210	-21	+30	385	106	-07	+12	-05	+07	-04	+06
18002	0	0	16	2	5	-73	+78	28	30	-11	+22	-21	+06	-08	+04
**KY	0	0	16	2	5	-73	+78	28	30	-11	+22	-21	+06	-08	+04
34002	0	0	20	20	132	-19	+19	263	53	-16	+20	-10	+07	-11	+11
34003	0	0	36	8	29	-16	+19	113	54	-04	+08	+00	+06	-01	+05
34004	1	0	2	2	1	-68	+28	20	5	-03	+26	-13	+18	-21	+24
**NC	1	0	58	30	162	-23	+22	396	112	-11	+16	-07	+09	-08	+10
*RG04	4	0	147	62	377	-26	+30	809	248	-10	+16	-10	+10	-07	+08
14002	7	0	36	8	2	-14	+10	114	25	-08	+06	-08	+07	-09	+07
14003	6	0	26	8	7	-15	+20	95	29	-14	+12	-16	+11	-18	+09
**IL	13	0	62	16	9	-15	+16	209	54	-11	+10	-13	+09	-15	+09
*RG05	13	0	62	16	9	-15	+16	209	54	-11	+10	-13	+09	-15	+09
19001	14	0	56	8	25	-27	+14	107	3	-04	+03	-01	+00	-01	+01
**LA	14	0	56	8	25	-27	+14	107	3	-04	+03	-01	+00	-01	+01
32001	0	0	6	4	57	+00	+00	57	15	-08	+13	-05	+08	-03	+06
**NM	0	0	6	4	57	+00	+00	57	15	-08	+13	-05	+08	-03	+06
*RG06	14	0	62	12	82	-22	+14	164	18	-08	+12	-05	+07	-03	+05
16002	1	0	?	?	?	???	???	?	?	???	???	???	???	???	???
**IA	1	0	?	?	?	???	???	?	?	???	???	???	???	???	???
28002	0	0	4	2	27	-21	+37	53	0						
**NB	0	0	4	2	27	-21	+37	53	0						
*RG07	1	0	4	2	27	-21	+37	53	0						
NATION	40	0	307	100	516	-24	+26	1,324	348	-10	+14	-10	+10	-08	+09

APPENDIX E

COMPARISONS OF PARS AND PERFORMANCE AUDIT DATA

TABLE E-1. PARS AND PA DATA FOR CO, PB, TSP, NO_2 (MANUAL) AND SO_2 (MANUAL) METHODS

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                  DATA SELECTED FOR YEAR 1983

REGION  01  STATE  07  CONNECTICUT                REP ORG  001  LAB  306001

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       6                       +1     +2      -1     +3
   PARS     (   6)    (-14) (+13)    ( -3) ( +4)    ( -5) ( +2)

I12128 LEAD     6       -4     +0      -4     +0      -5     -3
   PARS     (  15)    ( -5) ( +6)    ( -4) ( +4)

I11101 HIV     27      TOTAL            -6     +4
   PARS     (  84)                   ( -5) ( +5)

REGION  01  STATE  20  MAINE                      REP ORG  001  LAB  301001

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       6       -62   +54      -5    +10      -1     +6
   PARS     (   2)    ( +0) (+16)    ( -6) (+14)    ( -7) (+13)

I12128 LEAD    12       -8    +11      -7     +3      -9     +6
   PARS     (  16)    ( -6) ( +7)    ( -6) ( +2)

I11101 HIV      9      TOTAL           -20    +11
   PARS     (  61)                   ( -6) ( +8)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  01  STATE  22  MASSACHUSETTS             REP ORG  001  LAB  304001

                      ----------------PROBABILITY LIMITS------------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO       6      -7   +16      -1   +16      +3     +9
   PARS     (  13)   ( -5) (+10)   ( -3) ( +8)   ( -3) ( +4)

I12128 LEAD    12     -13    +7     -18   +10     -48   +46
   PARS     (  38)   ( -5) ( +4)   ( -4) ( +3)

REGION  01  STATE  30  NEW HAMPSHIRE             REP ORG  001  LAB  302001

                      ----------------PROBABILITY LIMITS------------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO      18     -12   +13      -3     +8      -4     +9
   PARS     (  23)   ( +0) ( +9)   ( -5) ( +8)   ( -6) ( +7)

I12128 LEAD    12     -12    +4     -13    +6      -6     +1
   PARS     (  12)   (-12) ( +7)   ( -5) ( +4)

I11101 HIV     10     TOTAL          -4     +0
   PARS     (  44)                 ( -4) ( +6)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

         COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  01  STATE  41  RHODE ISLAND            REP ORG  001  LAB  305001

                 ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       15      -5    +6       -1    +4       -3    +4
   PARS     (    8)  ( -3) ( +3)    ( -2) ( +1)    ( -3) ( +0)

I12128 LEAD     12      -8    -2      -12    +2       -3    -1
   PARS     (   23)  (-11) ( +8)    (-11) (+10)

I11101 HIV       6     TOTAL           -8    -2
   PARS     (   44)                 ( -7) ( +4)

REGION  01  STATE  47  VERMONT                 REP ORG  001  LAB  303001

                 ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO        9      -6    +1       -6    +1
   PARS     (    3)  ( -4) ( +2)    ( -2) ( +0)

I11101 HIV      41     TOTAL           -5    +3
   PARS     (   33)                 ( -5) ( +3)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85   DATA SELECTED FOR YEAR 1983

REGION AVERAGES

REGION 01

POL.CD.	AUDITS	PROBABILITY LIMITS LEVEL 1 LOW	 UP	 LEVEL 2 LOW	 UP	 LEVEL 3 LOW	 UP	 LEVEL 4 LOW	 UP
C42101 CO	60	-32	+41	-5	+8	-3	+7		
PARS	(55)	(-5)	(+10)	(-4)	(+6)	(-5)	(+5)		
I12128 LEAD	54	-11	+6	-12	+5	-22	+18		
PARS	(104)	(-7)	(+6)	(-6)	(+5)				
I11101 HIV	93	TOTAL		-8	+5				
PARS	(266)			(-6)	(+6)				

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                 DATA SELECTED FOR YEAR 1983

REGION  02  STATE  31  NEW JERSEY                  REP ORG  001  LAB  308001

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      30      -6    +4      -3    +7      +0    +5
  PARS     (  12)   (-11) ( +8)   ( -5) (+10)   ( -4) ( +7)

I11101 HIV     31     TOTAL          -4    +3
  PARS     (  31)                 ( -9) ( +6)

REGION  02  STATE  33  NEW YORK                    REP ORG  001  LAB  307001

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV     62     TOTAL          -3    +7
  PARS     ( 222)                 ( -1) ( +5)

REGION  02  STATE  33  NEW YORK                    REP ORG  001  LAB  407008

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      75     -45   +32      -3    +3      -2    +1
  PARS     (  77)   ( -7) ( +8)   ( -3) ( +6)   ( -2) ( +2)

I12128 LEAD    24     -10   +12     -10    +8      -8   +10
  PARS     (  34)   (-13) (+10)   (-15) (+15)

 * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  02  STATE  40  PUERTO RICO               REP ORG  001  LAB  309001

                        ----------------PROBABILITY LIMITS----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO        6      -24    +22     -14    +14     -10    +10
   PARS     (    8)   (-29) (+20)   (-21) (+16)   (-11) ( +6)

I11101 HIV       9      TOTAL          -14    +20
   PARS     (   26)                 ( -9) ( +3)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS

DATE 10/24/85   DATA SELECTED FOR YEAR 1983

REGION AVERAGES

REGION 02

		PROBABILITY LIMITS							
POL.CD.	AUDITS	LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
		LOW	UP	LOW	UP	LOW	UP	LOW	UP
C42101 CO	111	-37	+28	-4	+5	-3	+4		
PARS	(97)	(-10)	(+10)	(-6)	(+8)	(-3)	(+3)		
I12128 LEAD	24	-10	+12	-10	+8	-8	+10		
PARS	(34)	(-15)	(+12)	(-16)	(+15)				
I11101 HIV	102	TOTAL		-5	+8				
PARS	(279)			(-3)	(+5)				

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  03  STATE  08  DELAWARE                  REP ORG  001  LAB  313002

                     ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                      LOW    UP    LOW    UP    LOW    UP    LOW    UP

C42101 CO     12       -7    +3     -3    +5     -5    +3
   PARS     (   8)  ( -5) ( +6)  ( -8) ( +8)  (-10) ( +7)

I12128 LEAD   12      -41    +8     -9    -3    -11    -2
   PARS     (   8)  (-18) (+14)  (-16) ( +4)

I11101 HIV    23     TOTAL         -22    +6
   PARS     (  16)               ( -9) ( +6)

REGION  03  STATE  21  MARYLAND                  REP ORG  001  LAB  312001

                     ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                      LOW    UP    LOW    UP    LOW    UP    LOW    UP

I11101 HIV   174     TOTAL         -12   +11
   PARS     (  77)               (-10) ( +9)

REGION  03  STATE  21  MARYLAND                  REP ORG  002  LAB  312001

                     ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                      LOW    UP    LOW    UP    LOW    UP    LOW    UP

I11101 HIV   174     TOTAL         -12   +11
   PARS     (  13)               (-14) (+22)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  03  STATE  21  MARYLAND                  REP ORG  003  LAB  412004

                     ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV    11      TOTAL           +9   +87
   PARS     (  13)                  ( -8) ( +4)

REGION  03  STATE  21  MARYLAND                  REP ORG  005  LAB  412002

                     ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV    15      TOTAL           -4    +8
   PARS     (  12)                  ( -6) (+11)

REGION  03  STATE  21  MARYLAND                  REP ORG  006  LAB  412006

                     ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV    18      TOTAL           -3   +12
   PARS     (  13)                  (-12) (+15)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  03  STATE  39  PENNSYLVANIA               REP ORG  001  LAB  3110C2

                                ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      45      -13    +12     -11    +13     -8    +11
   PARS     (  22)   (-12) ( +9)   (-11) ( +5)   ( -7) ( +4)

I12128 LEAD    12      -29     +7      -9     +3    -11     -1
   PARS     (  24)   ( -6) ( +6)   (-10) ( +6)

REGION  03  STATE  39  PENNSYLVANIA               REP ORG  002  LAB  411C02

                                ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      12       -5     +2      -1     +4     -2     +4
   PARS     (  17)   ( -9) ( +6)   ( -5) ( +4)   ( -4) ( +4)

I12128 LEAD    12      -15     +9      -9     -1     -9     +2
   PARS     (  14)   (-20) (+14)   (-49) ( +1)

I11101 HIV     14     TOTAL            -5     +4
   PARS     ( 206)                 ( -5) ( +5)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  03  STATE  39  PENNSYLVANIA              REP ORG  003  LAB  411001

                      ----------------PROBABILITY LIMITS------------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO      36     -12    +7      -5    +6      -6    +5
   PARS     (   8)   ( -8) ( +5)   ( -7) ( +7)   ( -6) ( +5)

I12128 LEAD    12     -16   +22      -9    +0      -7    +4
   PARS     (   9)                 ( -5) ( +3)

I11101 HIV     11     TOTAL          -3    +8
   PARS     (  16)                 ( -8) ( +6)

REGION  03  STATE  48  VIRGINIA                  REP ORG  001  LAB  315001

                      ----------------PROBABILITY LIMITS------------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO      33      +0    +7      -1    +4      -2    +5
   PARS     (   8)   ( -5) ( +4)   ( -4) ( +1)   ( -4) ( +1)

I12128 LEAD    12      -3    +6      -4    +4      -7    +7
   PARS     (  12)   (-12) ( +8)   ( -5) ( +6)

I11101 HIV     25     TOTAL         -10    -1
   PARS     (  60)                 ( -3) ( +3)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

         COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  03  STATE  48  VIRGINIA                   REP ORG  002  LAB  415005

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                      LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42101 CO       3      -2     -2       +0     +0       +1     +1
   PARS     (   4)   ( -1) ( +2)    ( -4) ( +2)    ( -5) ( +2)

I11101 HIV      6     TOTAL           -11     +5
   PARS     (   8)                  ( -3) ( +2)

REGION  03  STATE  48  VIRGINIA                   REP ORG  003  LAB  415004

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                      LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42101 CO      18      -4     +2       -1     +5       +1     +3
   PARS     (  10)   ( -4) ( +5)    ( -5) ( +9)    ( -4) ( +8)

I42602 NO2      5                      -8     +2       -4     -4
   PARS     (  28)   ( -7) ( +8)    ( +0) ( +4)    ( -1) ( +5)

I12128 LEAD    11     -33    +67       -6    +14       +1     +5
   PARS     (  30)   ( -6) ( +7)    ( -2) ( +6)

I11101 HIV     11     TOTAL            -2     +0
   PARS     (  23)                  ( -3) ( +2)

REGION  03  STATE  48  VIRGINIA                   REP ORG  005  LAB  415001

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                      LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42101 CO       6      -4     +4       -3     +4       -8     +5
   PARS     (   4)   ( -1) ( +2)    ( -4) ( +2)    ( -5) ( +2)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                DATA SELECTED FOR YEAR 1983

REGION  03  STATE  50  WEST VIRGINIA              REP ORG  001  LAB  314001

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       6      -36   +21       -5    +2       -1    +0
   PARS     (   4)   ( -8) ( -1)    ( -6) ( +1)    ( -6) ( +0)

I12128 LEAD    12       +4   +13       -2   +10      -14   +12
   PARS     (  39)   ( -1) ( +7)    ( -6) ( +4)

I11101 HIV     15      TOTAL           -5    +8
   PARS     (  16)                  ( -5) ( +7)

REGION  03  STATE  50  WEST VIRGINIA              REP ORG  002  LAB  314002

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV     30      TOTAL           -9    +6
   PARS     (  20)                  ( -4) ( +7)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

           COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85             DATA SELECTED FOR YEAR 1983

                           REGION AVERAGES

REGION  03

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO     171     -10    +9      -6     +8      -5     +7
   PARS     (  85)   ( -9) ( +7)   ( -7) ( +5)   ( -6) ( +4)

I42602 NO2      5                    -8     +2      -4     -4
   PARS     (  28)   ( -6) ( +7)   ( +0) ( +3)   ( +0) ( +4)

I12128 LEAD    83     -30   +30     -11     +8     -11     +6
   PARS     ( 136)   (-10) (+11)   (-14) (+10)

I11101 HIV    527     TOTAL         -13    +11
   PARS     ( 493)                 ( -7) ( +7)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  04  STATE  01  ALABAMA                     REP ORG  011  LAB  319001

                  ---------------PROBABILITY LIMITS----------------

 POL.CD.     AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                       LOW    UP     LOW    UP     LOW    UP     LOW    UP

I11101 HIV     14      TOTAL          -8    +6
   PARS     (  44)                 ( -6) ( +7)

REGION  04  STATE  01  ALABAMA                     REP ORG  012  LAB  419001

                  ---------------PROBABILITY LIMITS----------------

 POL.CD.     AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                       LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO      12       +1    +7      +3    +5      +1    +4
   PARS     (   6)   ( -2) (+11)   ( -4) (+10)

I12128 LEAD     6       -8    -3      -4    +0      -6    -6
   PARS     (  12)   ( -5) ( -1)   ( -1) ( +1)

I11101 HIV     12      TOTAL          +5    +7
   PARS     ( 360)                 ( -4) ( +4)

REGION  04  STATE  01  ALABAMA                     REP ORG  014  LAB  419004

                  ---------------PROBABILITY LIMITS----------------

 POL.CD.     AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                       LOW    UP     LOW    UP     LOW    UP     LOW    UP

I12128 LEAD    12       -1    +5     -22   +70     -10   +10
   PARS     (  15)   ( -8) (+10)   ( -9) ( +7)

I11101 HIV      4      TOTAL          -1    +4
   PARS     (   8)                 ( -4) ( +4)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

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ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  04  STATE  01  ALABAMA                   REP ORG  015  LAB  419005

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

I11101 HIV      9     TOTAL          -8    +5
   PARS     (  13)                 (-11) (+10)

REGION  04  STATE  10  FLORIDA                   REP ORG  001  LAB  323005

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

I42602 NO2      5                    -5    +3       -3    -3
   PARS     (  12)   (-10) (+13)   ( -6) ( +7)   ( -5) ( +6)

I42401 SO2      9      +6   +16      +3   +14       -1   +16      -4   +18
   PARS     (  12)   (-12) (+10)   ( -6) ( +5)   ( -5) ( +4)

I11101 HIV     36     TOTAL          -8   +11
   PARS     (  53)                 ( -6) ( +6)

REGION  04  STATE  10  FLORIDA                   REP ORG  002  LAB  323003

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

I11101 HIV     15     TOTAL          -8    +8
   PARS     (   6)                 ( -1) ( +8)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
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(continued)

TABLE E-1 (Continued)

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ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

                COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                DATA SELECTED FOR YEAR 1983

REGION  04  STATE  10  FLORIDA                      REP ORG  003  LAB  323004

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV     21      TOTAL          -15    -2
   PARS     (   6)                  ( -7) ( +4)

REGION  04  STATE  10  FLORIDA                      REP ORG  004  LAB  323008

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

I42602 NO2      5                     -8     +3      -4     -4
   PARS     (   9)  ( -3) ( +8)     ( -3) ( +5)    ( -2) ( +6)

I42401 SO2     10     -48    +69      -6     -1      -7     +8      -6     +0
   PARS     (  21)  (-15) (+15)     (-10) ( +9)    ( -9) ( +6)

I11101 HIV     12      TOTAL          -4     +7
   PARS     (  13)                  ( -2) ( +1)

REGION  04  STATE  10  FLORIDA                      REP ORG  005  LAB  323002

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV     10      TOTAL          -9     -1
   PARS     (  14)                  ( -4) ( +7)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
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(continued)

TABLE E-1 (Continued)

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ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

           COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  04  STATE  10  FLORIDA                     REP ORG  006  LAB  323006

                     ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                      LOW    UP    LOW    UP    LOW    UP    LOW    UP

I11101 HIV     26     TOTAL         -5    +7
   PARS     (  13)               ( -6) ( +6)

REGION  04  STATE  10  FLORIDA                     REP ORG  007  LAB  323010

                     ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                      LOW    UP    LOW    UP    LOW    UP    LOW    UP

I11101 HIV      3     TOTAL         -1    +4
   PARS     (   5)               ( -6) ( +5)

REGION  04  STATE  10  FLORIDA                     REP ORG  011  LAB  423003

                     ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                      LOW    UP    LOW    UP    LOW    UP    LOW    UP

C42101 CO      30      -7    +9     -2    +7     -1    +7
   PARS     (  25)  ( -8) ( +8)  ( -3) ( +8)  ( -5) ( +8)

I12128 LEAD    12      +0   +12     -1    +4     -3    +3
   PARS     (  12)  ( -4) (+10)  ( -4) ( +4)

I11101 HIV     66     TOTAL         -6    +7
   PARS     (  65)               ( -4) (+11)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
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(continued)

TABLE E-1 (Continued)

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ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  04  STATE  10  FLORIDA                   REP ORG  012  LAB  423004

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                     LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      27     -23   +18      -7   +11      -7   +12
  PARS      (   6)   (-18) ( +9)   (-24) (+15)   (-28) (+15)

I42602 NO2     10                    -9    +2      -8    +1
  PARS      (  24)   ( -2) ( +5)   ( -1) ( +4)   ( -1) ( +4)

I42401 SO2      5      +3    +3      +2    +2      +3   +10      -3    -3
  PARS      (  23)   (-11) ( +4)   ( -6) ( +2)   ( -5) ( +1)

I12128 LEAD    12      -8    -3     -13    -4     -11    -3
  PARS      (  12)   (-14) ( -1)   (-11) ( +0)

I11101 HIV     43    TOTAL          -10   +13
  PARS      (  80)                 ( -8) (+14)

REGION  04  STATE  10  FLORIDA                   REP ORG  013  LAB  423016

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                     LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      30      -9    +5      -3    +1      -2    +2
  PARS      (  25)   ( -6) ( +6)   ( -4) ( +4)   ( -4) ( +5)

I42401 SO2     10      -4   +10      +4    +8      +2   +11      +2    +7
  PARS      (   7)   (-10) ( +0)   ( -6) ( +0)   ( -6) ( +0)

I12128 LEAD    12      -7   +10      -2    +1      -1    +3
  PARS      (  11)   ( -3) ( +8)   ( -5) (+11)

I11101 HIV     30    TOTAL           -6    +5
  PARS      (  36)                 ( -3) ( +2)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
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(continued)

TABLE E-1 (Continued)

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ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

         COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  04  STATE  10  FLORIDA                    REP ORG  014  LAB  423005

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

I42401 SO2     10      -9   +12      -4   +18      +1   +14      +0     +9
   PARS     (  31)   (-20) ( +7)   (-16) ( +5)   (-13) ( +2)

I11101 HIV     23     TOTAL          -5    +5
   PARS     (  17)                 (-14) (+21)

REGION  04  STATE  10  FLORIDA                    REP ORG  015  LAB  423015

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

I11101 HIV      9     TOTAL          -3    +6
   PARS     (   4)                 ( -5) ( +4)

REGION  04  STATE  10  FLORIDA                    REP ORG  016  LAB  423008

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO       6     -18    +8      +0    +4      +3   +12
   PARS     (   4)   (-16) (+15)   ( -3) ( +4)   ( -5) ( +5)

I11101 HIV     14     TOTAL          -4    +1
   PARS     (  12)                 ( -4) ( +2)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
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(continued)

TABLE E-1 (Continued)

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ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

        COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85             DATA SELECTED FOR YEAR 1983

REGION  04  STATE  10  FLORIDA                  REP ORG  017  LAB  423001

                      ----------------PROBABILITY LIMITS----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      27       -5    +1       -2    +1       -2    +1
   PARS      (   7)  (-44) (+42)   ( -3) ( +9)   ( -3) ( +4)

I42602 NO2     10                     -19    +7      -12   +11
   PARS      (  61)  ( -7) (+13)   ( -5) ( +7)   ( -4) ( +5)

I42401 SO2     10       -2   +40      -42   +22      -35   +15      -16   +13
   PARS      (  60)  (-39) (+17)   (-26) (+13)   (-19) ( +7)

I12128 LEAD    12       +0    +9       -5   +10       -2    +7
   PARS      (  14)  ( -5) ( +7)   ( -6) ( +6)

I11101 HIV     27     TOTAL           -10    +3
   PARS      (  14)                ( -7) ( +9)

REGION  04  STATE  10  FLORIDA                  REP ORG  018  LAB  423002

                      ----------------PROBABILITY LIMITS----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      12      -23    +3       -3    +5       -1    +1
   PARS      (   5)  (-26) (+14)   (-26) (+13)   (-24) (+11)

I12128 LEAD     6       -5    +5       -6    +0       -5    -2
   PARS      (  12)  ( -8) ( +3)   ( -2) ( +1)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

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ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

        COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  04  STATE  11  GEORGIA                   REP ORG  010  LAB  321001

                ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO     12       -9    +6      -3    +4      -2    +4
   PARS     (   9)   (-23) ( +5)   ( -6) ( +2)   ( -4) ( +2)

I12128 LEAD   12      -29   +10      -7    +0      -3    -1
   PARS     (   9)   ( -9) ( +0)   ( -4) ( +1)

I11101 HIV    15      TOTAL          -7    +2
   PARS     (  50)                 ( -6) (+10)

REGION  04  STATE  18  KENTUCKY                  REP ORG  001  LAB  316001

                ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

I11101 HIV    26      TOTAL          -3   +13
   PARS     ( 101)                 ( -4) (+13)

REGION  04  STATE  18  KENTUCKY                  REP ORG  001  LAB  316007

                ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO     39       -4   +86     -44   +60     -74   +71
   PARS     (  24)   (-16) (+14)   ( -7) ( +6)   ( -6) ( +5)

I12128 LEAD   12      -26   +27     -17    +9     -19   +13
   PARS     (  12)   (-15) (+24)   (-13) ( +8)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS

DATE 10/24/85   DATA SELECTED FOR YEAR 1983

REGION 04 STATE 18 KENTUCKY   REP ORG 002 LAB 416001

POL.CD.	AUDITS	PROBABILITY LIMITS LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP	LEVEL 4 LOW	LEVEL 4 UP
C42101 CO	21	-8	+7	-3	+6	-5	+11		
PARS	(2)	(-23)	(+11)	(-5)	(+7)	(-3)	(+6)		
I42401 SO2	5	+3	2						
PARS	(30)	(-4)	(+6)	(-2)	(+5)	(-1)	(+3)		
I12128 LEAD	12	-9	+5	-4	+2	-5	+3		
PARS	(12)	(-7)	(+14)	(-12)	(+12)				

REGION 04 STATE 25 MISSISSIPPI   REP ORG 100 LAB 322002

POL.CD.	AUDITS	PROBABILITY LIMITS LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP	LEVEL 4 LOW	LEVEL 4 UP
C42101 CO	6	+0	+4			-1	+2		
PARS	(4)	(-10)	(+9)	(-5)	(+7)	(-3)	(+4)		
I12128 LEAD	6	+3	+14	-17	+20	-3	+4		
PARS	(17)	(-16)	(+20)	(-12)	(+13)				
I11101 HIV	18	TOTAL		-9	+8				
PARS	(29)			(-6)	(+7)				

REGION 04 STATE 34 NORTH CAROLINA   REP ORG 001 LAB 318001

POL.CD.	AUDITS	PROBABILITY LIMITS LEVEL 1 LOW	LEVEL 1 UP	LEVEL 2 LOW	LEVEL 2 UP	LEVEL 3 LOW	LEVEL 3 UP	LEVEL 4 LOW	LEVEL 4 UP
I11101 HIV	62	TOTAL		-14	+12				
PARS	(227)			(-5)	(+4)				

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                 DATA SELECTED FOR YEAR 1983

REGION  04  STATE  34  NORTH CAROLINA          REP ORG  001  LAB  318004

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       12     -12   +12      -3    +7      -3    +4
   PARS     (  13)   (-14) ( +8)   ( -6) ( +4)   ( -6) ( +3)

REGION  04  STATE  34  NORTH CAROLINA          REP ORG  002  LAB  418003

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       12     -24    +9      -4    +3      -2    +3
   PARS     (   8)   (-12) ( +7)   ( -3) ( +4)   ( -2) ( +3)

I11101 HIV      27    TOTAL           -6    +2
   PARS     (  15)                 ( -8) ( +8)

REGION  04  STATE  34  NORTH CAROLINA          REP ORG  003  LAB  418006

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       30      -4    +4      -1    +3      -1    +3
   PARS     (  59)   ( -9) ( +7)   ( -1) ( +4)   ( -3) ( +3)

I42602 NO2      10                    -6    +2      -9    +9
   PARS     (  54)   ( -4) ( +7)   ( +0) ( +5)   ( -1) ( +5)

I11101 HIV      68    TOTAL           -5    +5
   PARS     (  43)                 ( -5) ( +7)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
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(continued)

TABLE E-1 (Continued)

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ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

         COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85           DATA SELECTED FOR YEAR 1983

REGION  04  STATE  34  NORTH CAROLINA          REP ORG  004  LAB  418008

               ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP     LOW    UP      LOW    UP      LOW    UP

I42602 NO2      4                    -28    -10
   PARS     (   5)   ( -2) (+24)   (-12) (+17)   (-20) (+23)

I11101 HIV     12      TOTAL         -14    +10
   PARS     (   8)                   ( -4) (+12)

REGION  04  STATE  42  SOUTH CAROLINA          REP ORG  001  LAB  320001

               ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP     LOW    UP      LOW    UP      LOW    UP

C42101 CO      18      -10    +4     -4     +5      -3     +6
   PARS     (  47)   (-22) (+11)   ( -8) ( +6)   ( -7) ( +5)

I12128 LEAD    12       -1    +8     -3     +6     -15    +12
   PARS     (  17)   ( -3) ( +8)   ( -3) ( +4)

I11101 HIV     13      TOTAL          +5     +7
   PARS     ( 228)                   ( -2) ( +2)

REGION  04  STATE  44  TENNESSEE               REP ORG  001  LAB  317001

               ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP     LOW    UP      LOW    UP      LOW    UP

I12128 LEAD    12      -10    +3     -18    +6      -9     +6
   PARS     (  27)   (-26) (+35)   (-14) (+19)

I11101 HIV     10      TOTAL          -5     +2
   PARS     ( 183)                   ( -5) (+10)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  04  STATE  44  TENNESSEE                  REP ORG  002  LAB  417004

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                        LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO        22      -7   +16      -4   +13      -1    +5
   PARS      (   33)   (-10) ( +5)   ( -5) ( +5)   ( -4) ( +5)

I12128 LEAD       6     -11   +15      -4    +0     -26   +18
   PARS      (   12)   (-15) (+16)   (-14) (+10)

I11101 HIV        5     TOTAL         -10    +3
   PARS      (   52)                 ( -4) ( +7)

REGION  04  STATE  44  TENNESSEE                  REP ORG  003  LAB  417003

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                        LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO        30      +0    +6      -2    +5      -1    +5
   PARS      (   28)   (-17) ( +8)   (-14) ( +8)   ( -3) ( +3)

I12128 LEAD       6      -9    -6      -4    +2      -8   +20
   PARS      (   60)   ( -5) ( +3)   ( -5) ( +3)

I11101 HIV       38     TOTAL          -5    +1
   PARS      (   90)                 ( -8) (+13)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM
            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  04  STATE  44  TENNESSEE                    REP ORG  004  LAB  417002
                       -----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW     UP     LOW     UP     LOW     UP     LOW     UP

C42101 CO       6       -9     +9      -3    +10      -8    +17
   PARS     (  11)   ( -6) ( +6)   ( -2) ( +3)   ( -4) ( +3)

I11101 HIV     18      TOTAL           -5     +6
   PARS     (  54)                 ( -5) ( +6)

REGION  04  STATE  44  TENNESSEE                    REP ORG  005  LAB  417001
                       -----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW     UP     LOW     UP     LOW     UP     LOW     UP

C42101 CO       6       -6     +4      -6     +6      -3     +8
   PARS     (   9)   ( -8) ( +5)   ( -6) ( +4)   ( -3) ( +6)

I11101 HIV     17      TOTAL           -8     +1
   PARS     (  46)                 ( -6) ( +6)

REGION  04  STATE  44  TENNESSEE                    REP ORG  006  LAB  417001
                       -----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW     UP     LOW     UP     LOW     UP     LOW     UP

I11101 HIV     17      TOTAL           -8     +1
   PARS     (  46)                 ( -6) ( +8)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
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(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

                              REGION AVERAGES

REGION  04

                       ----------------PROBABILITY LIMITS----------------

 POL.CD.     AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                       LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO     358      -26   +34     -16   +20     -22   +25
   PARS     ( 325)    (-15) (+10)   ( -7) ( +7)   ( -6) ( +5)

I42602 NO2     44                    -18    +8      -9    +6
   PARS     ( 165)    ( -8) (+13)   ( -8) (+11)   ( -5) ( +7)

I42401 SO2     59      -45   +43     -15   +19     -13   +19     -8   +12
   PARS     ( 184)    (-25) (+15)   (-17) (+10)   (-13) ( +7)

I12128 LEAD   150      -14   +13     -32   +25     -11    +8
   PARS     ( 254)    (-13) (+14)   ( -9) ( +8)

I11101 HIV    720      TOTAL          -9    +9
   PARS     (1935)                  ( -5) ( +7)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85             DATA SELECTED FOR YEAR 1983

REGION  05  STATE  14  ILLINOIS                 REP ORG  001  LAB  328001

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                     LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      21     -16   +27      -6   +10      -4    +7
   PARS     (   9)  ( -8) ( +6)   ( -7) ( +7)   ( -7) ( +5)

I12128 LEAD    12      -7    +2     -10    -2     -10    -1
   PARS     (  12)  ( -7) (+13)   ( -6) ( +7)

I11101 HIV     10     TOTAL          -3    +4
   PARS     (  69)                ( -7) ( +6)

REGION  05  STATE  14  ILLINOIS                 REP ORG  002  LAB  428002

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                     LOW    UP      LOW    UP      LOW    UP      LOW    UP

I42602 NO2     10                    -7    +4     -10   +11
   PARS     (  25)  ( -7) ( +5)   ( -8) ( +6)   ( -9) ( +6)

I12128 LEAD    10      -5    +2     -14    +5      -6    -4
   PARS     (  12)  ( -7) (+13)   ( -4) (+11)

I11101 HIV      9     TOTAL         -10    +6
   PARS     (  15)                (-13) (+11)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

                COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  05  STATE  14  ILLINOIS                     REP ORG  003  LAB  423003

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       15       -18   +15     -12   +14      -4   +12
   PARS      (  11)    (-17) ( +9)   ( -9) ( +6)   ( -9) ( +5)

I42602 NO2       9                      -5    +6      -7    +7
   PARS      (  29)    (-12) (+11)   (-15) (+10)   (-18) ( +9)

I12128 LEAD     12        -4   +15      -6    +4      -7    +1
   PARS      (  12)    ( -6) (+12)   ( -9) ( +8)

I11101 HIV       5      TOTAL           -8    -3
   PARS      (  20)                  ( -7) ( +4)

REGION  05  STATE  15  INDIANA                      REP ORG  001  LAB  329002

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       12       -18    +2      -4    +3      -2    +3
   PARS      (   9)    (-38) (+22)   (-11) (+11)   ( -6) (+10)

I12128 LEAD     12        -6    +4      -2    +2      -6    +9
   PARS      (  17)                  ( -9) (+10)

REGION  05  STATE  15  INDIANA                      REP ORG  002  LAB  429002

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV       6      TOTAL           +1    +5
   PARS      (  10)                  ( -2) ( +5)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  05  STATE  15  INDIANA                      REP ORG  003  LAB  429007

                    ----------------PROBABILITY LIMITS----------------

 POL.CD.    AUDITS    LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                     LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV     27    TOTAL           -5     +5
   PARS     (  16)                 ( -6) ( +4)

REGION  05  STATE  15  INDIANA                      REP ORG  005  LAB  429005

                    ----------------PROBABILITY LIMITS----------------

 POL.CD.    AUDITS    LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                     LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV     11    TOTAL           -6     +3
   PARS     (  10)                 ( -1) ( +4)

REGION  05  STATE  15  INDIANA                      REP ORG  008  LAB  429004

                    ----------------PROBABILITY LIMITS----------------

 POL.CD.    AUDITS    LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                     LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      18     -9     +3      -6     +5      -7     +7
   PARS     (  11)  ( -8) ( +8)    ( -4) ( +8)    ( -3) ( +3)

I11101 HIV      6    TOTAL           -8     +8
   PARS     (  16)                 ( -3) ( +5)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
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(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  05  STATE  15  INDIANA                   REP ORG  009  LAB  429008

                     ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV      15     TOTAL           -4    +6
   PARS      (   8)                 ( -4) ( +5)

REGION  05  STATE  23  MICHIGAN                  REP ORG  001  LAB  326001

                     ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       30      -7    +6       -5    +7       -7    +7
   PARS      (   8)  ( -9) ( +7)   ( -5) ( +2)   ( -7) ( +3)

I12128 LEAD     12     -59   +41      -52   +35      -53   +37
   PARS      (  50)  ( -7) ( +6)   ( -7) ( +3)

REGION  05  STATE  23  MICHIGAN                  REP ORG  002  LAB  426001

                     ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       15     -14   +15       -6    +9       +0    +8
   PARS      (   9)  (-15) (+11)   ( -3) ( +8)   ( -3) ( +6)

I12128 LEAD     12      -8   +12       -8    +8       -6    +5
   PARS      (  21)  ( -2) ( +4)   ( -3) ( +4)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  05  STATE  24  MINNESOTA                  REP ORG  001  LAB  324001

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      42      -15   +11      -5   +10      -5    +8
   PARS      (  21)   (-20) (+17)    (-12) (+11)    (-12) ( +8)

I12128 LEAD    12      -28   +15      -2    +2      -3    +4
   PARS      (  12)   ( -6) ( +3)    ( -6) ( +4)

I11101 HIV     20      TOTAL          -6    +3
   PARS      ( 117)                  ( -6) ( +5)

REGION  05  STATE  36  OHIO                       REP ORG  001  LAB  327001

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      18       -1    +8      -2    +9      -3    +9
   PARS      (   5)   ( -8) (+14)    ( -6) (+10)    ( -5) ( +7)

I12128 LEAD    12      -32   +45      -9    +1      -6    -4
   PARS      (  27)   (-11) ( +7)    ( -5) ( +2)

REGION  05  STATE  36  OHIO                       REP ORG  002  LAB  327003

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV     23      TOTAL          -9    +2
   PARS      (  11)                  (-11) ( -2)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
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(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  05  STATE  36  OHIO                       REP ORG  003  LAB  327005

                          ---------------PROBABILITY LIMITS---------------

 POL.CD.    AUDITS      LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                        LOW   UP      LOW   UP      LOW   UP      LOW   UP

I11101 HIV     24       TOTAL         -5    +4
  PARS      (  25)                  ( -6) ( +6)

REGION  05  STATE  36  OHIO                       REP ORG  005  LAB  327006

                          ---------------PROBABILITY LIMITS---------------

 POL.CD.    AUDITS      LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                        LOW   UP      LOW   UP      LOW   UP      LOW   UP

I11101 HIV     20       TOTAL        -10    +6
  PARS      (  11)                  (-11) ( +7)

REGION  05  STATE  36  OHIO                       REP ORG  006  LAB  427001

                          ---------------PROBABILITY LIMITS---------------

 POL.CD.    AUDITS      LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                        LOW   UP      LOW   UP      LOW   UP      LOW   UP

C42101 CO      12        -4    +5     -3    +6      -6    +8
  PARS      (   4)     (-21) (+10)  (-14) ( +8)   ( -8) (+11)

I11101 HIV     65       TOTAL         -5    +4
  PARS      (  16)                  ( -6) ( +6)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

         COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  05  STATE  36  OHIO                         REP ORG  007  LAB  427002

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1         LEVEL 2         LEVEL 3          LEVEL 4
                       LOW     UP      LOW     UP      LOW     UP      LOW     UP

C42101 CO        6     -31    +14      -11     +7       -7     +5
   PARS      (   4)   (-15) ( +7)    ( -5) ( +2)    ( -9) ( +4)

I11101 HIV      32     TOTAL            -7     +3
   PARS      (  14)                  ( -2) ( +2)

REGION  05  STATE  36  OHIO                         REP ORG  008  LAB  427003

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1         LEVEL 2         LEVEL 3          LEVEL 4
                       LOW     UP      LOW     UP      LOW     UP      LOW     UP

C42101 CO       30      -2    +12       +0     +8       -3     +9
   PARS      (   4)   (-18) (+15)    (-17) (+14)    (-15) ( +8)

I11101 HIV      38     TOTAL            -5     +4
   PARS      (  37)                  ( -8) ( +6)

REGION  05  STATE  36  OHIO                         REP ORG  009  LAB  427004

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1         LEVEL 2         LEVEL 3          LEVEL 4
                       LOW     UP      LOW     UP      LOW     UP      LOW     UP

C42101 CO       18     -10     +5       -5     +4       -5     +4
   PARS      (   2)   (-14) (+10)    (-18) (+14)    (-10) ( +2)

I11101 HIV      15     TOTAL           -10     +4
   PARS      (  36)                  (-14) ( +8)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

              COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                    DATA SELECTED FOR YEAR 1983

REGION  05  STATE  36  OHIO                          REP ORG  010  LAB  427005

                          ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       12      -11    +2      -4     +4      -4     +2
   PARS      (   4)    (-10) (+12)    (-10) ( +7)    ( -6) ( +0)

I11101 HIV      11      TOTAL          -19    +18
   PARS      (  27)                   (-13) ( +8)

REGION  05  STATE  36  OHIO                          REP ORG  012  LAB  427007

                          ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO        6      -11    +0      -5     +9      -5    +11
   PARS      (   4)    (-11) (+19)    ( -7) (+14)    ( -4) ( +9)

I11101 HIV      42      TOTAL          -7     +1
   PARS      (  16)                   ( -8) ( +5)

REGION  05  STATE  36  OHIO                          REP ORG  013  LAB  427010

                          ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV      19      TOTAL          -7     +7
   PARS      (  19)                   (-12) ( +4)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

        COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85            DATA SELECTED FOR YEAR 1983

REGION  05  STATE  36  OHIO                      REP ORG  014  LAB  427008

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      3      -28    -28     +32    +32     +18    +18
   PARS     (   2)  ( -9) ( +3)    ( +0) ( +0)    ( -2) ( +2)

I11101 HIV    14      TOTAL           +0     +2
   PARS     (  25)                 (-20) (+14)

REGION  05  STATE  36  OHIO                      REP ORG  015  LAB  427009

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO     12       -6    +1       -1    +0       -1    +2
   PARS     (   4)  ( -8) ( -5)    ( -7) ( -2)    ( -7) ( +0)

I11101 HIV    14      TOTAL           -8    +1
   PARS     (  17)                 ( -8) (+10)

REGION  05  STATE  36  OHIO                      REP ORG  016  LAB  427012

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      5       -2    +6       -4    +5       -1    -1
   PARS     (   4)  ( -4) ( +3)    ( -9) ( +5)    ( -7) ( +1)

I11101 HIV    24      TOTAL           -5    +3
   PARS     (  19)                 ( -4) ( +3)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  05  STATE  51  WISCONSIN                  REP ORG  001  LAB  325001

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS    LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                     LOW    UP     LOW    UP     LOW    UP     LOW    UP

I11101 HIV    42      TOTAL          -9    +7
  PARS     (  84)               ( -3) ( +4)

REGION  05  STATE  51  WISCONSIN                  REP ORG  001  LAB  325002

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS    LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                     LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO     54      -4   +10     -2    +8     -1    +6
  PARS     (   5)  (-11) (+20)  ( -5) ( +6)  ( -3) ( +0)

I12128 LEAD    6      -4    +8     -1    -1     -1    +1
  PARS     (  24)  ( -2) ( +2)  ( -3) ( +2)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

                             REGION AVERAGES

REGION  05

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO     329     -13   +13      -7   +11      -5    +8
   PARS     ( 120)   (-16) (+13)    ( -8) ( +8)    ( -8) ( +6)

I42602 NO2     19                    -6    +5      -8    +8
   PARS     (  54)   (-10) ( +8)    (-12) ( +8)    (-14) ( +8)

I12128 LEAD   100     -39   +50     -37   +43     -38   +43
   PARS     ( 187)   ( -8) ( +8)    ( -6) ( +5)

I11101 HIV    492     TOTAL          -7    +6
   PARS     ( 638)                  ( -9) ( +7)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  06  STATE  04  ARKANSAS                   REP ORG  002  LAB  332001

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

I12128 LEAD    6      -14    -8      -17    -6      -14    +0
  PARS     (  23)    (-30) (+47)    ( -4) (+19)

I11101 HIV    14      TOTAL           -3    +8
  PARS     ( 116)                   ( -5) ( +3)

REGION  06  STATE  19  LOUISIANA                  REP ORG  001  LAB  334001

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO     12       -5    +1       -1    +2       +1    +3
  PARS     (   3)    (-13) ( +1)    (-10) ( -1)    ( -3) ( -1)

I42602 NO2    10                      -8    +4      -10   +11
  PARS     (   1)

I11101 HIV    13      TOTAL           -5   +17
  PARS     ( 128)                   ( -5) ( +5)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                  DATA SELECTED FOR YEAR 1983

REGION  06  STATE  32  NEW MEXICO                REP ORG  001  LAB  330001

                 ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO        9       -6    +0       -2    +1       -2    +0
   PARS      (    9)   (-10) (+14)    ( -3) (+10)    ( -5) ( +6)

I12128 LEAD     12       -2    +2       -7    +5       -2    +5
   PARS      (   30)   ( -6) ( +4)    ( -4) ( +4)

I11101 HIV       9      TOTAL           -6   +15
   PARS      ( 201)                   ( -5) ( +6)

REGION  06  STATE  32  NEW MEXICO                REP ORG  002  LAB  430001

                 ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO        9      -29   +16       -4    +4       +0    +2
   PARS      (   19)   (-10) ( +7)    ( -7) ( +4)    ( -8) ( +3)

REGION  06  STATE  37  OKLAHOMA                  REP ORG  101  LAB  331002

                 ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       12      -24   +23       -9   +10       -5    +5
   PARS      (    2)   (+10) (+16)    ( +4) (+13)    (-20) (+14)

I12128 LEAD     12       -5    +1      -11    -3      -21   +13
   PARS      (   10)   ( -6) ( +4)    ( -7) ( +3)

I11101 HIV       2      TOTAL           -2   +14
   PARS      (   14)                  ( -7) (+13)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                  DATA SELECTED FOR YEAR 1983

REGION  06  STATE  37  OKLAHOMA                    REP ORG  102  LAB  431001

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                       LOW    UP       LOW    UP       LOW    UP       LOW    UP

I12128 LEAD     12     -13    +11      -15    +5       -9     -1
   PARS      (  12)   (-14) ( +4)     ( -8) ( +3)

I11101 HIV      13     TOTAL           -10    -1
   PARS      (  14)                   ( -8) ( +6)

REGION  06  STATE  37  OKLAHOMA                    REP ORG  103  LAB  431002

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                       LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42101 CO       12     -15    +17       -9    +8       -12    +14
   PARS      (  10)   (-29) (+40)     ( -8) (+10)     ( -1) ( +5)

I12128 LEAD     12      -4    +1        -6    +1        -9    +1
   PARS      (  24)   ( -3) ( +5)     ( -3) ( +6)

REGION  06  STATE  45  TEXAS                       REP ORG  001  LAB  333001

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                       LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42101 CO       36     -12    +10      -11    +7        -9    +7
   PARS      (  72)   (-20) (+22)     (-13) (+14)     (-16) (+14)

I11101 HIV      37     TOTAL            -9    +4
   PARS      ( 613)                   ( -6) ( +6)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

             COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                 DATA SELECTED FOR YEAR 1983

REGION  06  STATE  45  TEXAS                          REP ORG  002  LAB  433002

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1          LEVEL 2          LEVEL 3          LEVEL 4
                       LOW     UP       LOW     UP       LOW     UP       LOW     UP

C42101 CO       12     -18     +1       -14     +6       -12     +6
   PARS      (   8)   (-19) (+13)      (-18) (+11)      (-12) (+17)

I12128 LEAD     12     -11     +4       -57    +49       -15    +14
   PARS      (  24)   (-10) ( +2)      (-15) ( +2)

I11101 HIV      33     TOTAL             +0    +10
   PARS      (  67)                    ( -9) (+14)

REGION  06  STATE  45  TEXAS                          REP ORG  003  LAB  433001

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1          LEVEL 2          LEVEL 3          LEVEL 4
                       LOW     UP       LOW     UP       LOW     UP       LOW     UP

C42101 CO        6     -13    +30        -4    +25        -3    +23
   PARS      (   2)   ( +2) (+14)      ( -8) ( +4)      ( +0) ( +3)

I12128 LEAD      6      -5     +0        -7     -1       -22     +6
   PARS      (  12)   (-15) (+11)      ( -5) ( +7)

I11101 HIV      51     TOTAL            -16     +5
   PARS      (  92)                    ( -7) ( +8)

REGION  06  STATE  45  TEXAS                          REP ORG  005  LAB  433005

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1          LEVEL 2          LEVEL 3          LEVEL 4
                       LOW     UP       LOW     UP       LOW     UP       LOW     UP

I11101 HIV      11     TOTAL             -5     +4
   PARS      (  23)                    ( -3) ( +4)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

         COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85           DATA SELECTED FOR YEAR 1983

REGION  06  STATE  45  TEXAS               REP ORG  006  LAB  433008

                ----------PROBABILITY LIMITS-----------

 POL.CD.   AUDITS   LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                   LOW    UP    LOW    UP    LOW    UP    LOW    UP

C42101 CO     18   -15    +9    -3    +6    -7    +4
   PARS    (   6) (-18) ( +6) (-12) ( +5) ( -8) ( +6)

I12128 LEAD    5    +0    +0    -4    -3    -3    +3
   PARS    (   5) ( +0) ( +8) ( -2) ( +2)

REGION  06  STATE  45  TEXAS               REP ORG  007  LAB  433010

                ----------PROBABILITY LIMITS-----------

 POL.CD.   AUDITS   LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                   LOW    UP    LOW    UP    LOW    UP    LOW    UP

I11101 HIV    10   TOTAL        -4    -1
   PARS    (  38)             ( -2) ( +0)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

                COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                  DATA SELECTED FOR YEAR 1983

                              REGION AVERAGES

REGION  06

                 ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS    LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                     LOW    UP    LOW    UP    LOW    UP    LOW    UP

C42101 CO     126    -16   +12    -9    +9     -8    +8
   PARS     ( 131)  (-20) (+21)  (-11) (+11)  (-12) (+11)

I42602 NO2     10                 -8    +4    -10   +11
   PARS     (   1)

I12128 LEAD    77    -10    +5   -24   +15    -14    +8
   PARS     ( 140)  (-18) (+18)  (-10) (+10)

I11101 HIV    193    TOTAL        -11   +12
   PARS     (1306)               ( -6) ( +6)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85             DATA SELECTED FOR YEAR 1983

REGION  07  STATE  16  IOWA                      REP ORG  001  LAB  436001

                        ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       11      -15    +2       -4    +4       -4    +6
   PARS      (   9)   (-17) (+14)   ( -4) ( +1)   ( -2) ( +3)

I11101 HIV      23      TOTAL          -19   +20
   PARS      (  16)                 ( -8) ( +8)

REGION  07  STATE  16  IOWA                      REP ORG  002  LAB  436002

                        ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       15      -21   +16       -6   +12       +0    +9
   PARS      (  11)   (-13) ( +8)   ( -9) (+10)   (-15) (+10)

I11101 HIV      18      TOTAL           +4    +6
   PARS      (  23)                 ( -6) ( -3)

REGION  07  STATE  16  IOWA                      REP ORG  003  LAB  336001

                        ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO        6      -14   +13       -4    -1       -4   +10
   PARS      (   5)   (-19) ( +0)   ( -7) ( +5)   ( -3) ( +2)

I12128 LEAD     12      -15    +8       -6    -2       -8    -1
   PARS      (  24)   (-20) (+19)   ( -7) (+10)

I11101 HIV      15      TOTAL           -2    +7
   PARS      (  48)                 ( -2) ( +7)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

        COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                DATA SELECTED FOR YEAR 1983

REGION  07  STATE  17  KANSAS                     REP ORG  001  LAB  437001

                  ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

I11101 HIV     47     TOTAL         -19   +13
   PARS     (  18)                 (-11) ( +9)

REGION  07  STATE  17  KANSAS                     REP ORG  001  LAB  437003

                  ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO      21     -44   +63      -2    +3      -3    +3
   PARS     (   9)   (-10) ( +7)   ( -6) ( +3)   ( -4) ( +3)

I12128 LEAD     6      -8    -5     -10    -8      -8    -1
   PARS     (  22)   (-20) (+11)   (-21) ( +1)

REGION  07  STATE  26  MISSOURI                   REP ORG  001  LAB  338001

                  ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO       6      -3    +5      +3    +5      +3   +11
   PARS     (   2)   ( +4) ( +4)   ( -1) (+11)   ( +2) ( +2)

I11101 HIV     37     TOTAL          -3    +7
   PARS     (  18)                 ( -5) ( +2)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  07  STATE  26  MISSOURI                    REP ORG  002  LAB  438004

                        ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      30       -3   +14      +1    +7       -1    +5
   PARS     (   5)    (-15) (+10)   ( -4) ( +5)    ( -4) ( +3)

I12128 LEAD    12       -6    +7      -5    +0       -5    +5
   PARS     (  39)    ( -2) ( +4)   ( -1) ( +3)

I11101 HIV      7     TOTAL           -7    +9
   PARS     (  12)                  ( -9) ( +5)

REGION  07  STATE  26  MISSOURI                    REP ORG  003  LAB  438003

                        ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

                                      -6    +7       -2    +3
C42101 CO       6
   PARS     (   4)    (-17) (+37)   (-11) (+26)    (-13) (+22)

REGION  07  STATE  26  MISSOURI                    REP ORG  004  LAB  438002

                        ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

I12128 LEAD     6      -50   +39      -3    +3       -8   +11
   PARS     (   3)    ( -9) ( -1)   ( -5) ( -1)

I11101 HIV      8     TOTAL           -9    -3
   PARS     (   9)                  ( -6) ( +5)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  07  STATE  26  MISSOURI                    REP ORG  004  LAB  438006

                 ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      15     -10    -2      -6    +1      -5    +2
   PARS     (   5)  (-56) (+70)   (-19) (+17)   (-15) ( +5)

REGION  07  STATE  28  NEBRASKA                    REP ORG  001  LAB  335001

                 ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV     13     TOTAL          -27   +10
   PARS     (  21)                  (-27) (+26)

REGION  07  STATE  28  NEBRASKA                    REP ORG  002  LAB  335001

                 ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       3     -22   -22      +6    +6      +4    +4
   PARS     (   6)  ( -5) ( +3)   ( -1) ( +1)   ( -1) ( +1)

I11101 HIV     13     TOTAL          -27   +10
   PARS     (   8)                  (-36) (+15)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAG
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(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                 DATA SELECTED FOR YEAR 1983

REGION  07  STATE  28  NEBRASKA             REP ORG  003  LAB  435003

                       ----------------PROBABILITY LIMITS----------------

 POL.CD.    AUDITS    LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                     LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO      12    -19    +4     -4     +3     -4     +7
   PARS     (   5)  (-10) ( +5)  ( -7) ( +2)  ( -7) ( +0)

I12128 LEAD    12     -5    +2    -13     +5     -8     +2
   PARS     (  35)  (-20) ( +9)  ( -7) ( +9)

I11101 HIV     44    TOTAL        -15    +20
   PARS     (  21)               ( -8) ( +7)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

                             REGION AVERAGES

REGION  07

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO     125     -27   +27      -5    +8      -4    +7
   PARS     (  61)   (-22) (+21)   ( -9) ( +9)   ( -9) ( +7)

I12128 LEAD    48     -16   +11     -10    +3      -9    +4
   PARS     ( 123)   (-16) (+11)   (-13) (+10)

I11101 HIV    225     TOTAL         -16   +14
   PARS     ( 194)                 (-13) (+11)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  08  STATE  06  COLORADO                  REP ORG  001  LAB  344001

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      51      -26   +15     -11   +11      -6    +8
  PARS     (  24)    (-10) (+20)   ( -3) ( +8)   ( -3) ( +7)   ( +0) ( +3)

REGION  08  STATE  27  MONTANA                   REP ORG  001  LAB  339002

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      12      -46   +73      -9   +19      -5   +15
  PARS     (   2)    ( +4) (+20)   ( -9) (+19)   (-17) (+23)

I12128 LEAD    12      -12    +3     -10    +2     -14   +10
  PARS     (  15)    ( -4) ( +8)

REGION  08  STATE  27  MONTANA                   REP ORG  003  LAB  439002

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       6       -7   +15      -8   +15      -6   +10
  PARS     (   4)    ( +7) (+10)   ( +3) ( +5)   ( -3) ( +7)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

           COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                DATA SELECTED FOR YEAR 1983

REGION  08  STATE  27  MONTANA                      REP ORG  004  LAB  439003

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP     LOW    UP      LOW    UP      LOW    UP

I11101 HIV     24     TOTAL          -8    +1
   PARS     (  16)                ( -8) ( +7)

REGION  08  STATE  35  NORTH DAKOTA                 REP ORG  001  LAB  341001

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP     LOW    UP      LOW    UP      LOW    UP

I11101 HIV     18     TOTAL          -9    -1
   PARS     (  20)                ( -6) ( +1)

REGION  08  STATE  43  SOUTH DAKOTA                 REP ORG  001  LAB  342001

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP     LOW    UP      LOW    UP      LOW    UP

I11101 HIV      5     TOTAL          -6    +1
   PARS     (  86)                ( -2) ( +2)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  08  STATE  46  UTAH                       REP ORG  001  LAB  340001

                      ----------------PROBABILITY LIMITS-------------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3        LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP      LOW    UP

C42101 CO      63      -3    +7      -2    +3      -2    +3
   PARS     (  31)  ( -5) ( +8)   ( -5) ( +6)   ( -6) ( +5)

I12128 LEAD     6      -9    +8      -6    -5      -4    +0
   PARS     (  10)  ( -9) ( +7)   (-19) ( +9)

I11101 HIV      9     TOTAL          -4    +1
   PARS     (  12)                ( -4) ( +2)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS

DATE 10/24/85   DATA SELECTED FOR YEAR 1983

REGION AVERAGES

REGION 08

POL.CD.	AUDITS	PROBABILITY LIMITS LEVEL 1 LOW	 LEVEL 1 UP	 LEVEL 2 LOW	 LEVEL 2 UP	 LEVEL 3 LOW	 LEVEL 3 UP	 LEVEL 4 LOW	 LEVEL 4 UP
C42101 CO	132	-23	+23	-8	+10	-5	+7		
PARS	(61)	(-8)	(+15)	(-4)	(+7)	(-5)	(+7)	(+0)	(+2)
I12128 LEAD	18	-11	+5	-9	+1	-11	+7		
PARS	(25)	(-7)	(+9)	(-32)	(+22)				
I11101 HIV	56	TOTAL		-9	+0				
PARS	(134)			(-5)	(+5)				

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

           COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  09  STATE  03  ARIZONA                    REP ORG  100  LAB  347001

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       21      -11    +5      -2     +2      -1     +1
   PARS      (   6)   (-33) (+14)    ( -4) ( +2)    ( -1) ( +2)    ( +0) ( +0)

I12128 LEAD     12       -5   +19      -2     +4      -1     +6
   PARS      (  23)   ( -6) ( +7)    ( -5) ( +4)

I11101 HIV       8      TOTAL          -2     +6
   PARS      (  28)                  (-13) ( +9)

REGION  09  STATE  03  ARIZONA                    REP ORG  200  LAB  447001

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO       39      -18   +11      -9     +9      -9     +9
   PARS      (   6)   (-15) ( +9)    ( -5) ( +5)    ( -5) ( +5)

I12128 LEAD     12       -3   +19      -3     +7      -6     +9
   PARS      (  15)   ( -4) ( +8)    ( -1) ( +7)

I11101 HIV      27      TOTAL         -23     +5
   PARS      (  15)                  ( -8) ( +6)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

              COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85               DATA SELECTED FOR YEAR 1983

REGION  09  STATE  03  ARIZONA                       REP ORG  300  LAB  447002

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      15       -5    +5       -5    +6       -1    +1
   PARS      (   4)   ( -5) ( +1)   ( -3) ( +1)   ( -2) ( +0)

I12128 LEAD    12      -25   +26      -22   +40      -24   +44
   PARS      (   6)   (-12) ( +9)   ( -1) ( +3)

I11101 HIV     10      TOTAL           -18   +12
   PARS      (  16)                 (-10) ( +9)

REGION  09  STATE  05  CALIFORNIA                    REP ORG  001  LAB  345002

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

I11101 HIV     59      TOTAL           -13    +9
   PARS      (  78)                 (-11) (+10)

REGION  09  STATE  05  CALIFORNIA                    REP ORG  001  LAB  345003

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      30      -13   +10       -3    +4       -1    +2
   PARS      (  38)   (-12) (+13)   ( -8) ( +7)   ( -8) ( +6)

I12128 LEAD    18      -30   +22       -3    +9       -6   +14
   PARS      (  11)                 (-15) (+12)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  09  STATE  05  CALIFORNIA                 REP ORG  001  LAB   445016

                      -----------------PROBABILITY LIMITS------------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP      LOW    UP     LOW    UP     LOW    UP

C42101 CO      33     -35   +28     -20    +35     -12   +21
   PARS     (  38)  (-12) (+13)   ( -8) ( +7)    ( -8) ( +6)

I12128 LEAD     6      -4    -3       -3    +2       -2    +0
   PARS     (  11)                 (-15) (+12)

REGION  09  STATE  05  CALIFORNIA                 REP ORG  004  LAB   445001

                      -----------------PROBABILITY LIMITS------------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP      LOW    UP     LOW    UP     LOW    UP

C42101 CO       6      -2    +3       -1    +3       +0    +2
   PARS     (  32)  ( -9) ( +8)   ( -3) ( +2)    ( -2) ( +1)

I12128 LEAD     6      -7    +8     -12   +19       -2    +5
   PARS     (  12)  ( -9) ( +5)   ( -8) ( -2)

I11101 HIV      3     TOTAL           -7    +6
   PARS     (  43)                 ( -5) ( +4)

REGION  09  STATE  05  CALIFORNIA                 REP ORG  036  LAB   445005

                      -----------------PROBABILITY LIMITS------------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP      LOW    UP     LOW    UP     LOW    UP

C42101 CO      36      -4    +8       -2    +7       -3    +6
   PARS     (  10)  (-22) ( +6)   ( -6) ( +1)    ( -4) ( +1)   ( -6) ( +2)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

                COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  09  STATE  05  CALIFORNIA                  REP ORG  061  LAB  445002

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

I11101 HIV      8     TOTAL         -12    +4
   PARS     (  34)                 (-12) (+10)

REGION  09  STATE  05  CALIFORNIA                  REP ORG  061  LAB  445018

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO      42     -15    +31     -3    +11     -2     +7
   PARS     (  24)   ( -3) (+15)   ( -2) (+11)   ( -3) ( +8)

I12128 LEAD    12     -10     +0    -10     +3     -2     +2
   PARS     (  12)   (-15) (+13)   ( -3) ( +6)

REGION  09  STATE  12  HAWAII                      REP ORG  120  LAB  348001

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

I11101 HIV     13     TOTAL          -3    +3
   PARS     (  23)                 ( -5) ( +2)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

        COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  09  STATE  29  NEVADA                   REP ORG  200  LAB  446001

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO      21      -9    +9      -2    +2      -1    +1
   PARS     (   8)   ( -9) ( +7)  ( -5) ( +3)  ( -2) ( +2)

I11101 HIV     44     TOTAL         -14    +8
   PARS     (  64)                ( -7) ( +4)

REGION  09  STATE  29  NEVADA                   REP ORG  300  LAB  446002

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO       9     -16   +10      -8    +5      -7    +2
   PARS     (   8)   ( -1) ( +1)  ( -7) (+13)  ( -2) ( +4)  ( -1) ( +3)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

                             REGION AVERAGES

REGION  09

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW   UP

C42101 CO     252     -18   +19     -10   +14      -7    +9
   PARS     ( 174)   (-13) (+13)   ( -7) ( +8)   ( -6) ( +5)   ( -5) ( +3)

I12128 LEAD    78     -19   +19     -12   +16     -12   +18
   PARS     (  90)   ( -8) ( +8)   ( -8) ( +8)

I11101 HIV    172     TOTAL         -15   +10
   PARS     ( 301)                 ( -9) ( +7)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

           COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                DATA SELECTED FOR YEAR 1983

REGION  10  STATE  02  ALASKA                      REP ORG  020  LAB  451001

                  -----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                     LOW    UP     LOW    UP     LOW    UP     LOW    UP

I11101 HIV     5     TOTAL          -3   +11
  PARS     (  15)                (-13) ( +6)

REGION  10  STATE  02  ALASKA                      REP ORG  020  LAB  451002

                  -----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                     LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO     39     -10    +2      -3    +3      -2    +1
  PARS     (  13)  (-13) (+10)   ( -2) ( +3)   ( -3) ( +2)

REGION  10  STATE  38  OREGON                      REP ORG  001  LAB  353001

                  -----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                     LOW    UP     LOW    UP     LOW    UP     LOW    UP

I11101 HIV    42     TOTAL         -13    +8
  PARS     ( 397)                ( -5) ( +5)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

REGION  10  STATE  38  OREGON                     REP ORG  001  LAB  453001

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                        LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO      47       -17   +12     -13   +13      -2    +4
   PARS      (  68)    (-17) ( +9)   ( -6) ( +4)   ( -5) ( +2)

I12128 LEAD    12        -6    +4      -2    +3      -2    +6
   PARS      (  12)    ( -4) (+10)   ( -2) ( +5)

REGION  10  STATE  49  WASHINGTON                 REP ORG  001  LAB  352001

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                        LOW    UP     LOW    UP     LOW    UP     LOW    UP

I11101 HIV     73       TOTAL          -9   +10
   PARS      (  38)                  ( -5) ( +8)

REGION  10  STATE  49  WASHINGTON                 REP ORG  001  LAB  452006

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                        LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42101 CO       9        -2    +0      -1    +1      -2    +2
   PARS      (  40)    ( -6) ( +5)   ( -6) ( +3)   ( -4) ( +2)

I12128 LEAD    12       -21    +1     -16   +10     -21   +12
   PARS      (   8)    ( -5) ( +7)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85              DATA SELECTED FOR YEAR 1983

                            REGION AVERAGES

REGION  10

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42101 CO      95      -14    +8      -9     +9      -3     +3
  PARS       ( 121)   (-13) ( +8)   ( -5) ( +3)   ( -4) ( +1)

I12128 LEAD    24      -17    +7      -11    +8      -14    +12
  PARS       (  20)   (-11) (+15)   ( -8) (+10)

I11101 HIV     120     TOTAL          -10    +9
  PARS       ( 450)                 ( -5) ( +5)
```

(continued)

TABLE E-1 (Continued)

ENVIRONMENTAL PROTECTION AGENCY EMSL PRECISION/ACCURACY REPORTING SYSTEM

COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85 DATA SELECTED FOR YEAR 1983

NATIONAL AVERAGES

		PROBABILITY LIMITS							
POL.CD.	AUDITS	LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
		LOW	UP	LOW	UP	LOW	UP	LOW	UP
C42101 CO	1759	-24	+22	-10	+13	-14	+16		
PARS	(1230)	(-15)	(+13)	(-8)	(+8)	(-7)	(+6)	(-4)	(+3)
I42602 NO2	78			-15	+7	-9	+7		
PARS	(248)	(-9)	(+12)	(-8)	(+10)	(-7)	(+8)		
I42401 SO2	59	-45	+43	-15	+19	-13	+19	-8	+12
PARS	(184)	(-26)	(+15)	(-18)	(+11)	(-14)	(+7)		
I12128 LEAD	656	-23	+23	-25	+22	-20	+19		
PARS	(1113)	(-12)	(+12)	(-10)	(+9)				
I11101 HIV	2700	TOTAL		-11	+10				
PARS	(5996)			(-7)	(+7)				

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES

(continued)

TABLE E-1 (Continued)

ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS

DATE 10/24/85   DATA SELECTED FOR YEAR 1983

REGIONAL SUMMARY

POL.CD. ?42101   CARBON MONOXIDE

REGION	AUDITS	PROBABILITY LIMITS							
		LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
		LOW	UP	LOW	UP	LOW	UP	LOW	UP
01	60	-32	+41	-5	+8	-3	+7		
PARS	(55)	(-5)	(+10)	(-4)	(+6)	(-5)	(+5)		
02	111	-37	+28	-4	+5	-3	+4		
PARS	(97)	(-10)	(+10)	(-6)	(+8)	(-3)	(+3)		
03	171	-10	+9	-6	+8	-5	+7		
PARS	(85)	(-9)	(+7)	(-7)	(+5)	(-6)	(+4)		
04	358	-26	+34	-16	+20	-22	+25		
PARS	(325)	(-15)	(+10)	(-7)	(+7)	(-6)	(+5)		
05	329	-13	+13	-7	+11	-5	+8		
PARS	(120)	(-16)	(+13)	(-8)	(+8)	(-8)	(+6)		
06	126	-16	+12	-9	+9	-8	+8		
PARS	(131)	(-20)	(+21)	(-11)	(+11)	(-12)	(+11)		
07	125	-27	+27	-5	+8	-4	+7		
PARS	(61)	(-22)	(+21)	(-9)	(+9)	(-9)	(+7)		
08	132	-23	+23	-8	+10	-5	+7		
PARS	(61)	(-8)	(+15)	(-4)	(+7)	(-5)	(+7)	(+0)	(+2)
09	252	-18	+19	-10	+14	-7	+9		
PARS	(174)	(-13)	(+13)	(-7)	(+8)	(-6)	(+5)	(-5)	(+3)
10	95	-14	+8	-9	+9	-3	+3		
PARS	(121)	(-13)	(+8)	(-5)	(+3)	(-4)	(+1)		

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES

(continued)

TABLE E-1 (Continued)

ENVIRONMENTAL PROTECTION AGENCY EMSL PRECISION/ACCURACY REPORTING SYSTEM

COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85 DATA SELECTED FOR YEAR 1983

REGIONAL SUMMARY

POL.CD. ?42602 NITROGEN DIOXIDE

REGION	AUDITS	----------------PROBABILITY LIMITS----------------							
		LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
		LOW	UP	LOW	UP	LOW	UP	LOW	UP
03	5			-8	+2	-4	-4		
PARS	(28)	(-6)	(+7)	(+0)	(+3)	(+0)	(+4)		
04	44			-18	+8	-9	+6		
PARS	(165)	(-8)	(+13)	(-8)	(+11)	(-5)	(+7)		
05	19			-6	+5	-8	+8		
PARS	(54)	(-10)	(+8)	(-12)	(+8)	(-14)	(+8)		
06	10			-8	+4	-10	+11		
PARS	(1)								

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES

(continued)

TABLE E-1 (Continued)

ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85   DATA SELECTED FOR YEAR 1983

REGIONAL SUMMARY

POL.CD. ?42401   SULFUR DIOXIDE

REGION	AUDITS	PROBABILITY LIMITS							
		LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
		LOW	UP	LOW	UP	LOW	UP	LOW	UP
04	59	-45	+43	-15	+19	-13	+19	-8	+12
PARS	(184)	(-25)	(+15)	(-17)	(+10)	(-13)	(+7)		

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES

(continued)

TABLE E-1 (Continued)

ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85   DATA SELECTED FOR YEAR 1983

REGIONAL SUMMARY

POL.CD. ?12128   LEAD

REGION	AUDITS	PROBABILITY LIMITS							
		LEVEL 1		LEVEL 2		LEVEL 3		LEVEL 4	
		LOW	UP	LOW	UP	LOW	UP	LOW	UP
01	54	-11	+6	-12	+5	-22	+18		
PARS	(104)	(-7)	(+6)	(-6)	(+5)				
02	24	-10	+12	-10	+8	-8	+10		
PARS	(34)	(-15)	(+12)	(-16)	(+15)				
03	83	-30	+30	-11	+8	-11	+6		
PARS	(136)	(-10)	(+11)	(-14)	(+10)				
04	150	-14	+13	-32	+25	-11	+8		
PARS	(254)	(-13)	(+14)	(-9)	(+8)				
05	100	-39	+50	-37	+43	-38	+43		
PARS	(187)	(-8)	(+8)	(-6)	(+5)				
06	77	-10	+5	-24	+15	-14	+8		
PARS	(140)	(-18)	(+18)	(-10)	(+10)				
07	48	-16	+11	-10	+3	-9	+4		
PARS	(123)	(-16)	(+11)	(-13)	(+10)				
08	18	-11	+5	-9	+1	-11	+7		
PARS	(25)	(-7)	(+9)	(-19)	(+9)				
09	78	-19	+19	-12	+16	-12	+18		
PARS	(90)	(-8)	(+8)	(-8)	(+8)				
10	24	-17	+7	-11	+8	-14	+12		
PARS	(20)	(-11)	(+15)	(-8)	(+10)				

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES

(continued)

TABLE E-1 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

                  COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 10/24/85                  DATA SELECTED FOR YEAR 1983

                                      REGIONAL SUMMARY

POL.CD. ?11101   HI VOL
                         ----------------PROBABILITY LIMITS-----------------

REGION       AUDITS       LEVEL 1         LEVEL 2          LEVEL 3         LEVEL 4
                        LOW    UP       LOW    UP        LOW    UP       LOW    UP
   01          93       TOTAL            -8    +5
   PARS      ( 266)                   ( -6) ( +6)
   02         102       TOTAL            -5    +8
   PARS      ( 279)                   ( -3) ( +5)
   03         527       TOTAL           -13   +11
   PARS      ( 493)                   ( -7) ( +7)
   04         720       TOTAL            -9    +9
   PARS      (1935)                   ( -5) ( +7)
   05         492       TOTAL            -7    +6
   PARS      ( 638)                   ( -9) ( +7)
   06         193       TOTAL           -11   +12
   PARS      (1306)                   ( -6) ( +6)
   07         225       TOTAL           -16   +14
   PARS      ( 194)                   (-13) (+11)
   08          56       TOTAL            -9    +0
   PARS      ( 134)                   ( -5) ( +5)
   09         172       TOTAL           -15   +10
   PARS      ( 301)                   ( -9) ( +7)
   10         120       TOTAL           -10    +9
   PARS      ( 450)                   ( -5) ( +5)

* ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2. PARS AND PA DATA FOR SO_2 CONTINUOUS METHODS

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

             COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85          DATA SELECTED FOR YEAR 1983

REGION  01  STATE  20  MAINE                        REP ORG  001  LAB  301001

                       ----------------PROBABILITY LIMITS----------------

 POL.CD.    AUDITS      LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                       LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42401 SO2     4        +8    +8        +8    +9        +8    +8
   PARS     (  16)   ( -5) (+13)     ( -7) (+15)     ( -4) (+12)

REGION  01  STATE  22  MASSACHUSETTS                REP ORG  001  LAB  304001

                       ----------------PROBABILITY LIMITS----------------

 POL.CD.    AUDITS      LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                       LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42401 SO2    12        +0    +5        -2   +10        +1    +7
   PARS     (  21)   (-12) ( +9)     (-12) ( +9)     (-12) (+11)

REGION  01  STATE  30  NEW HAMPSHIRE                REP ORG  001  LAB  302001

                       ----------------PROBABILITY LIMITS----------------

 POL.CD.    AUDITS      LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                       LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42401 SO2     4        -5    -5        -8    -3        -6    -6
   PARS     (  50)   ( -9) ( +6)     ( -9) ( +8)     (-10) ( +7)

REGION  01  STATE  41  RHODE ISLAND                 REP ORG  001  LAB  305001

                       ----------------PROBABILITY LIMITS----------------

 POL.CD.    AUDITS      LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                       LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42401 SO2     4       +12   +12        +3    +3        +2    +2
   PARS     (  12)   (-13) ( +7)     ( -9) ( +7)     ( -7) ( +7)

  * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85           DATA SELECTED FOR YEAR 1983

REGION  01  STATE  47  VERMONT                   REP ORG  001  LAB  303001

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2      8        -8    +17      -5    +9      -4    +7
   PARS     (   7)    ( -8) ( +9)   ( -9) ( +8)   ( -7) ( +7)

    * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

              COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85              DATA SELECTED FOR YEAR 1983

                             REGION AVERAGES

REGION  01

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2    32       -7   +15       -6   +11       -6   +11
   PARS     ( 106)   (-10) ( +9)    (-10) ( +9)    ( -9) ( +9)

  * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

           COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85              DATA SELECTED FOR YEAR 1983

REGION  02  STATE  33  NEW YORK                   REP ORG  001  LAB  307001
                        ----------------PROBABILITY LIMITS----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     12       -3    +22      -5    +15      +2    +19
   PARS      ( 249)   ( -9) (+12)    ( -6) (+10)    ( -9) (+10)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85          DATA SELECTED FOR YEAR 1983

                              REGION AVERAGES

REGION  02

                     -----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42401 SO2     12       -3   +22      -5   +15      +2   +19
   PARS     ( 249)   ( -9) (+12)   ( -6) (+10)   ( -9) (+10)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85            DATA SELECTED FOR YEAR 1983

REGION  03  STATE  21  MARYLAND                    REP ORG  001  LAB  312001

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                        LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42401 SO2      21      -24   +20       -12   +16        -6   +10        -3    +6
   PARS      (  34)   (-20) (+17)    ( -9) (+10)     ( -8) ( +8)

REGION  03  STATE  21  MARYLAND                    REP ORG  005  LAB  412002

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                        LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42401 SO2       4      -11   -11        -6    +0        -5    -5
   PARS      (   4)   (-19) (+17)    (-19) (+12)     (-17) (+14)

REGION  03  STATE  39  PENNSYLVANIA                REP ORG  001  LAB  311002

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                        LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42401 SO2       9      -17   +18        -4    +4
   PARS      (  30)   (-14) (+13)    (-12) ( +8)     (-10) ( +8)

REGION  03  STATE  39  PENNSYLVANIA                REP ORG  002  LAB  411002

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                        LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42401 SO2      22      -12   +14        -8    +9        -8   +10       -13   +17
   PARS      (  67)   (-10) ( +8)    ( -5) ( +5)     (-10) ( +8)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

           COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85          DATA SELECTED FOR YEAR 1983

REGION  03  STATE  39  PENNSYLVANIA                 REP ORG  003  LAB  411001

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW     UP     LOW     UP     LOW     UP     LOW     UP

C42401 SO2      12      -12     +9      -8     +3      -7     +3      -7     +3
   PARS     (   8)   (-21) ( +4)   (-17) ( +4)   (-17) ( +5)

REGION  03  STATE  48  VIRGINIA                     REP ORG  001  LAB  315001

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW     UP     LOW     UP     LOW     UP     LOW     UP

C42401 SO2       8       +0     +5      +2     +4      +3     +5
   PARS     (  10)   ( -8) ( +3)   ( -6) ( +1)   ( -8) ( +1)

REGION  03  STATE  48  VIRGINIA                     REP ORG  002  LAB  415005

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW     UP     LOW     UP     LOW     UP     LOW     UP

C42401 SO2       4       +4     +4      +4     +4      +4     +4
   PARS     (   4)   (-10) ( +2)   ( -9) ( +3)   (-11) ( +3)

REGION  03  STATE  48  VIRGINIA                     REP ORG  003  LAB  415004

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW     UP     LOW     UP     LOW     UP     LOW     UP

C42401 SO2      16       +2    +17      -1    +13      -2    +10
   PARS     (  11)   (-11) ( +5)   (-12) ( +9)   (-12) ( +8)

  * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

           COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85             DATA SELECTED FOR YEAR 1983

REGION  03  STATE  50  WEST VIRGINIA             REP ORG  001  LAB  314001

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     8      -11    +23      -4    +1      -2    +0
   PARS     (  19)  ( -4) (+11)   ( -3) ( +6)   ( -4) ( +5)   ( +3) ( +3)

REGION  03  STATE  50  WEST VIRGINIA             REP ORG  002  LAB  314002

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2    12       +3    +11      +4    +7      +5    +7
   PARS     (  24)  (-11) (+14)   ( -9) (+10)   ( -7) ( +9)

    * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY PEPORTING SYSTEM

                 COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85              DATA SELECTED FOR YEAR 1983

                              REGION AVERAGES

REGION  03

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                        LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42401 SO2    116       -13   +17       -7    +10       -6    +9        -7    +8
   PARS      ( 211)    (-13) (+12)    ( -9) ( +8)    ( -9) ( +8)    ( +3) ( +3)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85            DATA SELECTED FOR YEAR 1983

REGION  04  STATE  01  ALABAMA                    REP ORG  012  LAB  419001

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                       LOW    UP    LOW    UP    LOW    UP    LOW    UP

C42401 SO2      4      +8    +8     +6   +13     +9    +9
   PARS     (   3)  (-34) ( -9)  (-25) (+13)  (-22) ( +1)

REGION  04  STATE  10  FLORIDA                    REP ORG  001  LAB  323005

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                       LOW    UP    LOW    UP    LOW    UP    LOW    UP

C42401 SO2      4      +1    +1     +2    +3     +0    +0
   PARS     (   4)  ( -5) (+10)  ( -1) (+10)  ( -7) ( +7)

REGION  04  STATE  10  FLORIDA                    REP ORG  002  LAB  323003

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                       LOW    UP    LOW    UP    LOW    UP    LOW    UP

C42401 SO2      6     -23   +46     +9   +24
   PARS     (   5)  (-30) (+32)  (-25) (+40)  (-29) (+41)

REGION  04  STATE  10  FLORIDA                    REP ORG  003  LAB  323004

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                       LOW    UP    LOW    UP    LOW    UP    LOW    UP

C42401 SO2      8     -86   +57    -76   +42     +4    +5
   PARS     (   4)  (-14) ( +0)  (-19) (+20)  (-14) (+14)

  * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

         COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85            DATA SELECTED FOR YEAR 1983

REGION  04  STATE  10  FLORIDA                      REP ORG  004  LAB  323008

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2      4      -29   -29      -2    +0      -2    -2
   PARS     (   4)   (-71) (+41)   ( -3) (+30)   ( -9) (+52)

REGION  04  STATE  10  FLORIDA                      REP ORG  007  LAB  323010

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2      4      -23   -23     -21   -20     -21   -21
   PARS     (   4)   (-40) (+16)   (-37) (+22)   (-40) (+26)

REGION  04  STATE  11  GEORGIA                      REP ORG  010  LAB  321001

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2      8       +5    +5      -3    +2     -14    +4
   PARS     (  12)   (-25) (+29)   (-24) (+24)   (-15) (+23)

REGION  04  STATE  18  KENTUCKY                     REP ORG  001  LAB  316001

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     12       -6    +5     -11    +9     -13   +12
   PARS     (  41)   (-26) (+14)   (-20) (+10)   (-19) ( +7)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

           COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85            DATA SELECTED FOR YEAR 1983

REGION  04   STATE  18  KENTUCKY                  REP ORG  002  LAB  416001

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                        LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42401 SO2       8      -12   +13     -1    +4      -7    -5
  PARS       (    3)  ( -3) ( +8)   ( +0) ( +8)   ( +0) ( +7)

REGION  04   STATE  25  MISSISSIPPI               REP ORG  100  LAB  322001

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                        LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42401 SO2       8       -1    +9     -1   +10      -3   +10
  PARS       (   11)  (-24) ( +1)   (-23) ( +0)   (-23) ( -1)

REGION  04   STATE  34  NORTH CAROLINA            REP ORG  003  LAB  418006

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                        LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42401 SO2       4       +0    +0     -5    -2      -2    -2
  PARS       (    7)  (-28) ( -9)   (-23) ( -7)   (-21) ( -6)

REGION  04   STATE  42  SOUTH CAROLINA            REP ORG  001  LAB  320001

                         ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                        LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42401 SO2      16      -24    +3    -13    +3     -16    +5
  PARS       (  115)  (-16) (+13)   (-10) (+11)   ( -9) (+10)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

             COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85           DATA SELECTED FOR YEAR 1983

                             REGION AVERAGES

REGION  04

                     ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     86      -31    +25     -26    +23     -16    +11
   PARS      ( 213)   (-24)  (+16)   (-18)  (+15)   (-18)  (+15)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

           COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85           DATA SELECTED FOR YEAR 1983

REGION  05  STATE  14  ILLINOIS                   REP ORG  001  LAB  328001

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                     LOW     UP      LOW     UP      LOW     UP      LOW     UP

C42401 SO2     12     -22    +15     -18    +15     -21    +18
   PARS     (  22)   ( -9) (+10)   ( -7) (+11)   ( -8) (+12)

REGION  05  STATE  15  INDIANA                    REP ORG  002  LAB  429002

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                     LOW     UP      LOW     UP      LOW     UP      LOW     UP

C42401 SO2      4     -14    -14     -18    -10     -16    -16
   PARS     (  10)   (-14) (+11)   (-11) (+10)   (-10) (+12)

REGION  05  STATE  15  INDIANA                    REP ORG  008  LAB  429004

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                     LOW     UP      LOW     UP      LOW     UP      LOW     UP

C42401 SO2     12     -15     +5     -11     +3     -10     +2
   PARS     (  12)   (-13) (+15)   (-13) (+14)   (-13) (+12)

REGION  05  STATE  23  MICHIGAN                   REP ORG  001  LAB  326001

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                     LOW     UP      LOW     UP      LOW     UP      LOW     UP

C42401 SO2      8     -22     +9     -16     +9     -12    +11
   PARS     (  13)   (-16) (+10)   (-11) ( +9)   (-11) ( +9)

  * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85           DATA SELECTED FOR YEAR 1983

REGION  05  STATE  23  MICHIGAN                   REP ORG  002  LAB  426001

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     12     -19    +2      -12    -6      -11    -6
   PARS     (   9)  (-17) (+15)    (-15) (+15)    (-12) ( +8)

REGION  05  STATE  24  MINNESOTA                  REP ORG  001  LAB  324001

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     18     -10    -1       -8    -1      -10    +1       -3    -1
   PARS     (  28)  (-13) (+12)    ( -8) ( +8)    ( -9) ( +6)    ( -5) ( +1)

REGION  05  STATE  36  OHIO                       REP ORG  001  LAB  327001

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2      8     -18   +14      -10   +17      -12   +11
   PARS     (   4)  ( -3) (+14)    ( +2) (+15)    ( +7) (+14)

REGION  05  STATE  36  OHIO                       REP ORG  002  LAB  327003

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     12      -3    +8       +0    +6       -4   +11
   PARS     (   4)  (-67) (+26)    (-61) (+43)    (-24) (-21)

    * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85             DATA SELECTED FOR YEAR 1983

REGION  05  STATE  36  OHIO                      REP ORG  007  LAB  427002

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     18      -23   +20      -18   +12      -25   +16
   PARS      (   4)   (-25) (+22)    (-26) (+24)    (-24) (+21)

REGION  05  STATE  36  OHIO                      REP ORG  009  LAB  427004

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     12      -14    +4       -8    +0       -9    +0
   PARS      (   4)   (-27) ( +4)    (-26) ( +7)    (-26) ( +4)

REGION  05  STATE  36  OHIO                      REP ORG  015  LAB  427009

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     12       -7   +14       -4    +7       -7    +7
   PARS      (   2)   (-21) (+35)    (-17) (+28)    (-14) (+21)

    * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85              DATA SELECTED FOR YEAR 1983

                              REGION AVERAGES

REGION  05

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1         LEVEL 2         LEVEL 3         LEVEL 4
                        LOW    UP       LOW    UP       LOW    UP       LOW    UP

C42401 SO2    128       -17   +10       -15    +9       -15    +9        -3    -1
  PARS       ( 112)    (-19) (+16)     (-15) (+15)     (-16) (+13)     ( -4) ( +0)

  * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85          DATA SELECTED FOR YEAR 1983

REGION  06  STATE  19  LOUISIANA                   REP ORG  001  LAB  334001

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1       LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP     LOW    UP      LOW    UP      LOW    UP

C42401 SO2     12      -26    -4     -13    -1      -18   +11
   PARS      (   6)  (-25) (+21)   (-19) (+23)    (-19) (+22)

REGION  06  STATE  45  TEXAS                       REP ORG  001  LAB  333001

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS     LEVEL 1       LEVEL 2        LEVEL 3        LEVEL 4
                       LOW    UP     LOW    UP      LOW    UP      LOW    UP

C42401 SO2     16      -11   +24      -5    +8       -6    +8
   PARS      ( 173)  (-21) (+29)   (-11) (+17)    (-10) (+15)    (-12) ( +7)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

                COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85             DATA SELECTED FOR YEAR 1983

                              REGION AVERAGES

REGION  06

                        ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     28       -29    +24     -12    +8      -12    +9
   PARS      ( 179)    (-20) (+27)   (-10) (+16)   (-10) (+14)   (-11) ( +6)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

           COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85              DATA SELECTED FOR YEAR 1983

REGION  07   STATE  16  IOWA                        REP ORG  003  LAB  336001

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2      4       +3     +3      +2     +4      -1     -1
  PARS       (  21)   (-17) (+12)   (-21) (+23)   (-22) (+22)   (-13) (+18)

REGION  07   STATE  17  KANSAS                      REP ORG  001  LAB  337001

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2      8      -66    -50     -54    -43     -54    -41
  PARS       (   4)   (-39) (+11)   (-30) (+18)   (-21) (+11)

REGION  07   STATE  26  MISSOURI                    REP ORG  002  LAB  438004

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     12      -11     +9     -11     +5      -5     +1
  PARS       (   5)   (-15) (+21)   ( -2) (+11)   ( -3) ( +7)

REGION  07   STATE  26  MISSOURI                    REP ORG  005  LAB  438005

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2      4      +12    +12      +3    +12      +4     +4
  PARS       (   4)   ( -4) ( +4)   ( -6) (+12)   ( -8) (+17)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

           COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85          DATA SELECTED FOR YEAR 1983

                            REGION AVERAGES

REGION  07

                       ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS    LEVEL 1      LEVEL 2       LEVEL 3       LEVEL 4
                     LOW    UP    LOW    UP     LOW    UP     LOW    UP

C42401 SO2     28    -73   +44    -60   +32     -59   +31
  PARS      (  34)  (-21) (+15)  (-19) (+21)   (-19) (+20)   (-12) (+17)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85            DATA SELECTED FOR YEAR 1983

REGION  08  STATE  27  MONTANA                   REP ORG  001  LAB  339001

                       ---------------PROBABILITY LIMITS---------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2    15       -13   +32      -9   +16      -7   +13      -5    +9
  PARS      (  30)   (-45) (+35)   (-13) (+15)   (-10) (+13)   (-10) (+11)

REGION  08  STATE  35  NORTH DAKOTA              REP ORG  001  LAB  341001

                       ---------------PROBABILITY LIMITS---------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2    12        -4    +5      -3    +0      -4    +0
  PARS      (  16)   (-12) (+13)   (-13) ( +9)   (-12) ( +6)

REGION  08  STATE  46  UTAH                      REP ORG  001  LAB  340001

                       ---------------PROBABILITY LIMITS---------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2    15        -8   +10      -5    +4      -5    +4      -4    +4
  PARS      (  36)   (-10) ( +8)   ( -9) ( +9)   ( -9) ( +8)   ( -6) ( +5)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85             DATA SELECTED FOR YEAR 1983

                           REGION AVERAGES

REGION  08

                   ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42401 SO2    42      -11   +19     -8    +9     -7    +7     -5    +7
   PARS     (  82)   (-27) (+23)  (-11) (+11)  (-10) (+10)  ( -8) ( +8)

  * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85             DATA SELECTED FOR YEAR 1983

REGION  09  STATE  03  ARIZONA                     REP ORG  100  LAB  347001

                        ---------------PROBABILITY LIMITS----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     15        -14   +21      -6    +8      -5    +3      -5    +4
   PARS      (  24)    (-18) ( +8)   (-15) ( +3)   (-15) ( +5)   (-10) ( +4)

REGION  09  STATE  05  CALIFORNIA                  REP ORG  001  LAB  345001

                        ---------------PROBABILITY LIMITS----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     11        -18   +16     -12   +16     -13   +12
   PARS      (  24)    (-15) (+27)   (-14) (+24)   (-14) (+23)

REGION  09  STATE  05  CALIFORNIA                  REP ORG  004  LAB  445001

                        ---------------PROBABILITY LIMITS----------------

 POL.CD.     AUDITS      LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                        LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2      4         +0    +0      -1    +0      +0    +0
   PARS      (  18)    (-12) (+12)   (-13) (+10)   (-14) (+13)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

           COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85           DATA SELECTED FOR YEAR 1983

                         REGION AVERAGES

REGION  09

                  ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1       LEVEL 2       LEVEL 3       LEVEL 4
                      LOW    UP     LOW    UP     LOW    UP     LOW    UP

C42401 SO2     30     -14   +16      -9   +11      -7    +5      -5    +4
   PARS     (  66)  (-18) (+19)   (-17) (+16)   (-16) (+16)   ( -9) ( +3)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

         COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85            DATA SELECTED FOR YEAR 1983

REGION  10  STATE  49  WASHINGTON                 REP ORG  001  LAB  352001

                    ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1      LEVEL 2      LEVEL 3      LEVEL 4
                      LOW   UP     LOW   UP     LOW   UP     LOW   UP

C42401 SO2     4      -41   -41    -31   -3     -12   -12
   PARS     (  29)   ( -9) ( +6)  ( -8) ( +6)  ( -7) ( +6)  (-10) ( +6)

   * ZERO PROBABILITY LIMITS ARE INCLUDED IN THE CALCULATION OF THE AVERAGES
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

            COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85           DATA SELECTED FOR YEAR 1983

                              REGION AVERAGES

REGION  10

                      ----------------PROBABILITY LIMITS-----------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2     4      -41   -41      -31    -3      -12   -12
   PARS     (  29)  ( -9) ( +6)    ( -8) ( +6)    ( -7) ( +6)    (-10) ( +6)
```

(continued)

TABLE E-2 (Continued)

```
ENVIRONMENTAL PROTECTION AGENCY   EMSL PRECISION/ACCURACY REPORTING SYSTEM

          COMPARISON REPORT OF QADHS ACCURACY AUDITS & PARS
DATE 12/16/85           DATA SELECTED FOR YEAR 1983

                               NATIONAL AVERAGES

                    ---------------PROBABILITY LIMITS---------------

 POL.CD.    AUDITS     LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4
                      LOW    UP      LOW    UP      LOW    UP      LOW    UP

C42401 SO2    506     -26   +23      -20   +18      -18   +15      -6     +6
   PARS     (1281)   (-18) (+17)    (-12) (+13)    (-12) (+12)    (-8)   (+8)
```